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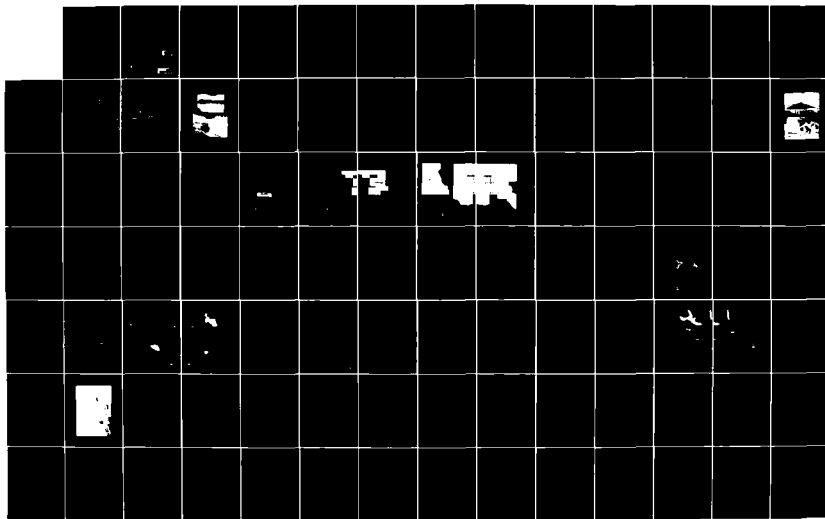
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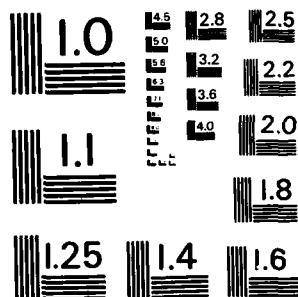
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**SOCIOCULTURAL FACTORS REVIEW
FOR THE
WARM SPRINGS DAM - LAKE SONOMA PROJECT
CANDIDATE/CRITICAL HABITAT ZONE EVALUATION**

Prepared by

Warm Springs Cultural Resources Study
Sonoma State University
Rohnert Park, California

David A. Fredrickson
Principal Investigator

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April 1982

Revised June 1983

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under the terms of Contract No. DACW07-78-C-0043, Modification No. P00010

ABSTRACT

The candidate/critical habitat zones (CHZs) are three noncontiguous parcels (totalling 15,000 acres) that adjoin or overlap Federal land in the rugged mountains of northwestern Sonoma County. The zones are presently being evaluated by the U.S. Army Corps of Engineers to determine the potential impact of proposed mitigation alternatives to protect peregrine falcon habitats in the zones. This report deals with sociocultural factors identified in the CHZs.

Ethnographic data suggest that the primary Native American use of the study area was for resource procurement. No archaeological survey has been undertaken within the 13,500 acres of private CHZ lands. The demonstrated high degree of archaeological sensitivity, however, suggests that the land may have supported a variety of activities prehistorically.

No records were found of early Euro-American settlement in the area. After 1860, the study area began to be settled by homesteaders who raised cattle and later sheep. While small, family ranches prevailed during the first decades of recorded settlement, large ranches, sometimes under corporate ownership, became the norm by the turn of the century. Hunting--by ranchers, their friends, and members of hunting clubs--has been a major activity in the area from the historic period to the present. No field survey of historic resources has been undertaken within the zones' private lands. Historical sites reflecting a significant regionwide pattern can be expected to occur within the study area.

Lifestyle and economic values have remained relatively constant in the 20th century. Owners have often had recreational motives for purchasing or maintaining their holdings, but ranches have been expected to pay for themselves. In recent years, according to ranchers, stock losses due to sharply increased predation have made sheep ranching uneconomical. Owners are now contemplating new uses for their lands.

Construction of nearby Warm Springs Dam may have considerable impact on CHZ lands. Anticipation of increased land values due to the presence of Lake Sonoma has made the future of the CHZs uncertain. Maintenance of large ranches rests on the economic viability of alternative uses of the land and on the persistence of an undeveloped environment which permits landowners to continue to enjoy an independent and solitary lifestyle.

PREFACE

Scope of the Sociocultural Factors Review

As a part of the evaluation of alternative management options for the candidate/critical habitat zones (CHZs), the Warm Springs Cultural Resources Study (WSCRS) was directed to undertake a sociocultural factors review. The study was to identify, describe, evaluate, and report existing conditions within the CHZs and project the potential effects of the proposed alternatives on these factors. Specific tasks identified by the Corps of Engineers were the following:

- Description of prehistoric land-management techniques, an overview of prehistoric archaeological resources, and identification of archaeologically sensitive areas

- Identification of Native American ancestral ties to the area and current values associated with the area

- Description of historic-period settlement in terms of population relocation and settlement, economic patterns, technology, and land management practices

- Description of existing land uses and land-management practices, with particular note to recreational uses

- Identification of current population of the areas, the history of their ties to the CHZs, and the relative importance of these ties compared with other associations of these individuals

- Identification of governmental bodies, agencies, institutions, and other groups having major associations with the areas.

Authorization for the review was received on 19 December 1980. The report was to be submitted on 6 March 1981, allowing approximately two months for research and writing. It should be noted that the analysis presented in this report relates to the conditions specified by the project's Scope of Services.

Study Methods

A staff representing the fields of prehistoric archaeology, historical archaeology, history, cultural anthropology, geography, and economics was assembled. The first task was to become acquainted with the study area. Field trips to the CHZs provided first impressions and generated initial

research questions. Previous research efforts related to the region, both completed reports and archival materials on file at the WSCRS office, were reviewed. An intensive interviewing program followed, consulting Native Americans with local ties to the area, CHZ landowners, residents of the surrounding area, and representatives of public and private agencies. Research using county and federal archival material was conducted to establish the history of land use in the CHZs. (Specific methods for each of the factors reviewed are described at the beginning of each chapter. A list of consultants is included at the end of this report.)

Weekly meetings were held to report progress, share findings, and prevent overlap of research efforts. Regular progress reports were submitted informally to Richard Lerner and David Tripp, liaisons between the study and the Corps of Engineers. Fieldwork and research were terminated in mid-February, and a "draft in progress" report was submitted to the Corps of Engineers on 6 March 1981.

Study Limitations

The brief time period allowed for the preparation of this report presented several problems. Consultants and materials were not always available on short notice, nor was there opportunity to conduct follow-up interviews to fill research gaps. During the holiday season, which extended through the first few weeks after authorization, many individuals contacted were unable to grant interviews, resulting in delays gathering primary data. In most cases, it was necessary to begin writing before research was completed, requiring revisions as new information was received.

Lack of access to private lands was another difficulty encountered. Thus, attempts to identify cultural resources in the field were limited to roadside reconnaissance.

Acknowledgments

The study was fortunate in receiving the cooperation of most landholders in the CHZs. Their willingness to discuss their land and their way of life has given this report a sense of immediacy. Especially helpful was Thomas Baxter III, landowner in the Rancheria Creek CHZ, who

The interdisciplinary nature of the staff and the frequency of meetings resulted in an ideal research context. Information was readily shared among staff members and feedback on preliminary drafts was exchanged. While the projections and some of the 20th-century material are based on the research efforts of several members of the staff, chapters were written by the following persons:

Deborah Balaam

Historic Land Use:

Adrian Praetzellis

Mary Praetzellis

Jennie L. Goodrich

David W. Peri

Sheep Ranching:

Keith Gebhardt

Timber/Hunting/Recreation:

Kathleen McBride

A Cultural View of Residents and Owners:

Albert L. Wahrhaftig

Projected Changes in the CHZs:

Suzanne B. Stewart

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Other members of the study research staff included: Kathleen Stanton

Roscoe (current land use); Terry Schuster (archaeology); Kathleen Smith (Native American land use); and Roger Trott (current land use). Karana Hattersley-Drayton surveyed the area for examples of vernacular architecture and provided photographs of the Upper Dry Creek CHZ. Early photographs were generously donated by Geraldine Von Husen, relative of a major settler in the Upper Dry Creek Zone. Maps were produced by Deborah Balaam.

WSCRS Associate Investigators Roberta S. Greenwood and Dorothea J. Theodoratus offered valuable responses to the preliminary draft of this report.

Marilyn Sisler served as Administrative Aide to the study, facilitating research efforts and report preparation. The report was edited by Suzanne B. Stewart. David A. Fredrickson served as Principal Investigator, responsible for the overall coordination of the study.

TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT	i
PREFACE	iii
 CHAPTER 1 - THE CANDIDATE/CRITICAL HABITAT ZONES	
Location	1
The Physical Landscape	1
A View of the Cultural Landscape	2
Rancheria Creek Critical Habitat Zone	5
Dry Creek Candidate/Critical Habitat Zone	6
Upper Dry Creek Candidate Habitat Zone	9
Government Involvement in the Habitat Zones	10
Summary	14
 CHAPTER 2 - PREHISTORIC OVERVIEW AND ARCHAEOLOGICAL SENSITIVITY	
Introduction	15
Archaeological Overview	16
Archaeological Sensitivity	22
Archaeological Sensitivity of the Critical Habitat Zones	28
Summary and Conclusions	31
 CHAPTER 3 - NATIVE AMERICAN LAND USE	
Introduction	33
Territories, Tribes, and Boundaries in the Study Area	37
Land-Management Practices	38
Rancheria Creek Critical Habitat Zone	43
Dry Creek Candidate/Critical Habitat Zone	47
Upper Dry Creek Candidate Habitat Zone	48
Summary	53
 CHAPTER 4 - HISTORIC LAND USE	
Introduction	55
Settlement and Land Use	58
First Phase, 1855-1864: Early Settlement	59
Second Phase, 1865-1875: Early Patents	63
Third Phase, 1876-1890: Confirmation and Expansion	73
Fourth Phase, 1891-1914: Corporate Investment	95
Discussion	105
Demography	105
Patent History	109
Horticulture	117

CHAPTER 4 - continued	<u>Page</u>
Stock Ranching	118
Conclusions	
Formation of the Cultural Landscape and Material Remains	120
Research Implications	121
CHAPTER 5 - TWENTIETH-CENTURY POPULATION AND LAND USE	
Introduction	123
Sheep Ranching	125
Timber Harvesting	138
Hunting	145
Fishing	150
Recreation	150
A Cultural View of Residents and Owners	155
CHAPTER 6 - PROJECTED CHANGES IN THE CHZS	
Impact of No Action by the Federal Government	175
Impact of Fee Acquisition by the Federal Government	180
Impact of Acquisition of Development Rights	182
Recommendations	184
REFERENCES CITED	187
CONSULTANTS	195
APPENDIX A - EARLY SETTLERS IN THE STUDY AREA ENUMERATED IN THE 1860-1900 CENSUSES	199
APPENDIX B - VERNACULAR ARCHITECTURE SURVEY	205
MAPS	<u>Follows Page</u>
1 - Location of Critical and Candidate Habitat Zones	2
2 - Rancheria Creek Zone: Present Land Ownership	5
3 - Dry Creek Zone: Present Land Ownership	5
4 - Upper Dry Creek Zone: Present Land Ownership	5
5 - Rancheria Creek Zone: Zoning	12
6 - Dry Creek Zone: Zoning	12
7 - Upper Dry Creek Zone: Zoning	12

Follows
Page

MAPS - continued

8 - Rancheria Creek Zone: Prehistoric Archaeological Sensitivity	28
9 - Dry Creek Zone: Prehistoric Archaeological Sensitivity	30
10 - Upper Dry Creek Zone: Prehistoric Archaeological Sensitivity	30
11 - Ethnographic Setting of the Project Area	38
12 - Rancheria Creek Zone: Land Tenure 1865 to 1875	70
13 - Dry Creek Zone: Land Tenure 1865 to 1875	70
14 - Upper Dry Creek Zone: Land Tenure 1865 to 1875	70
15 - Rancheria Creek Zone: Land Tenure 1876 to 1890	91
16 - Dry Creek Zone: Land Tenure 1876 to 1890	91
17 - Upper Dry Creek Zone: Land Tenure 1876 to 1890	91
18 - Rancheria Creek Zone: Land Tenure 1891 to 1900	103
19 - Dry Creek Zone: Land Tenure 1891 to 1900	103
20 - Upper Dry Creek Zone: Land Tenure 1891 to 1900	103
21 - Rancheria Creek Zone: Land Tenure 1912	103
22 - Dry Creek Zone: Land Tenure 1912	103
23 - Upper Dry Creek Zone: Land Tenure 1912	103

PLATES

Page

1 - Scenes in the Upper Dry Creek Candidate Habitat Zone	3
2 - Barn in the Upper Dry Creek Zone; Bunkhouse at Cooley Ranch	8
3 - Basketweavers Collecting Sedge near Dry Creek	41
4 - Member of Elk Range Gun Club (founded in 1887)	89
5 - Matthews and Relatives in Upper Dry Creek (ca. 1910)	100
6 - Vacationing at Matthews' Ranch (ca. 1910)	103
7 - Historic Sheep Fencing in the Upper Dry Creek Zone	127
8 - Coyote Carcass Displayed on Sheep Fencing	132
9 - Recreational Structures in the Upper Dry Creek Zone	151
10 - "Cummings" Property	229
11 - Cooley Ranch	230

FIGURES

1 - WSCRS Area Analysis	25
2 - Soil-Vegetation Zones: WSCRS and CHZs	26
3 - Demographic Profile - 1880	106
4 - Demographic Profile - 1900	108
5 - Individual Landholdings: Upper Dry Creek CHZ	113
6 - Land Ownership: Upper Dry Creek CHZ	114
7 - Land Ownership: Rancheria Creek CHZ	115
8 - Land Ownership: Dry Creek CHZ	116

TABLES

	<u>Page</u>
1 - Summary of Warm Springs Prehistoric Archaeological Sites	17
2 - WSCRS Site Types by Soil-Vegetation Zones	27
3 - County Tax Assessments 1861-1870	61
4 - County Tax Assessments 1876-1880	75
5 - 1880 Federal Agricultural Census	76
6 - CHZ Patent Registration by Decade	111
7 - Analysis of Economic Return for the Sheep Industry	135
8 - Selected Characteristics of Owners and Properties in the CHZs	160

CHAPTER 1
THE CANDIDATE/CRITICAL HABITAT ZONES

Location

The candidate/critical habitat zones (CHZs) under review consist of three separate areas totalling approximately 15,000 acres. These zones are peripheral to or overlap the Warm Springs Dam-Lake Sonoma Project area in northwestern Sonoma County. San Francisco is about 70 miles to the south. Nearby communities include Cloverdale, 3 miles northeast of the Dry Creek Critical Habitat Zone; Geyserville, about 10 miles to the southeast; and Healdsburg, 15 miles to the southeast (map 1). These communities are located on Highway 101, which provides major access to the area from the north and south. Roads leading into the CHZs are Hot Springs Road, Kelly Road, and Rockpile Road. Both Rockpile and Hot Springs are county roads, while Kelly Road was constructed by private means. Kelly Road is now federally owned and only limited access is allowed.

The Physical Landscape

The candidate/critical habitat zones are segments of land which share characteristics typical of their region, with boundaries imposed solely for habitat recognition. Thus, the following discussion of basic environmental conditions will address a greater area, called here the Dry Creek Uplands. Physical characteristics unique to each zone are discussed below.

The Dry Creek Uplands are located in the Mendocino Range, a division of the California North Coast Ranges. Here, the geologic structure consists primarily of Jurassic Age sedimentary and volcanic rocks of the Franciscan Formation and of shales from the Great Valley Sequence (U.S. Army Corps of Engineers 1973:40). Vertical movement along faults and cutting by streams have sculpted a rugged, mountainous terrain with steep-sided ridges and deep, narrow valleys. Appearing in several locations are rock outcrops and large cliffs. Elevations range between 200 and 2,500 feet above sea level. The upland areas are dissected in a dendritic pattern by intermittent and perennial streams. Major branches in the drainage system join Dry Creek, which opens into a narrow, flat valley and broadens as it flows

southeast toward the Russian River. A small portion of the CHZs is drained by the Wheatfield Fork of the Gualala River, which flows west to the Pacific Ocean.

Climate in the area is characterized by cool, wet winters and warm, dry summers. Annual precipitation, almost exclusively in the form of rain, varies according to topographic conditions and is subject to yearly fluctuations. Average annual precipitation in the Dry Creek drainage ranges from 37 to 57 inches. Temperatures and winds are also subject to micro-climatic variation; differences in elevation, aspect, and vegetative cover account for a wide range of temperatures within this environment. Although winters are cool, temperatures rarely drop below freezing. Snow may occasionally fall in the higher elevations but does not generally accumulate. In the coldest month, January, the mean daily temperatures average 45°F, while 72°F is the average for July, the warmest month (U.S. Army Corps of Engineers 1973:38).

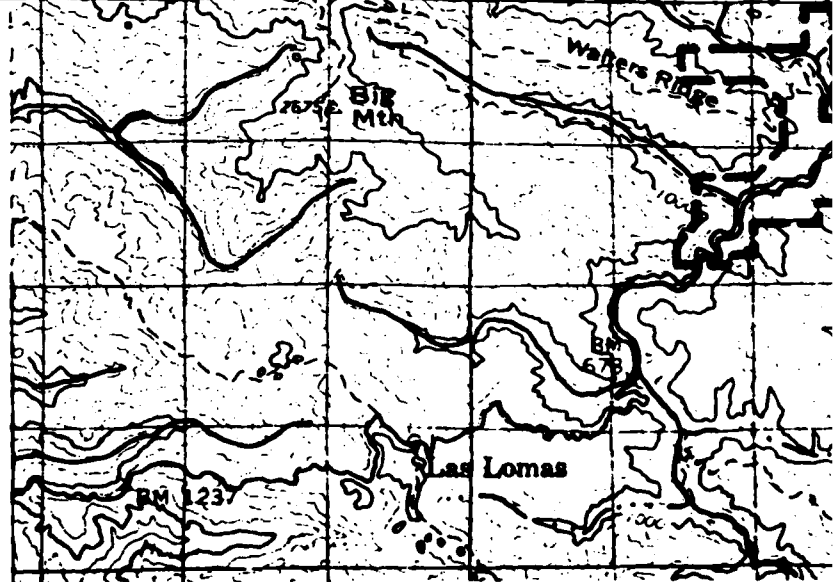
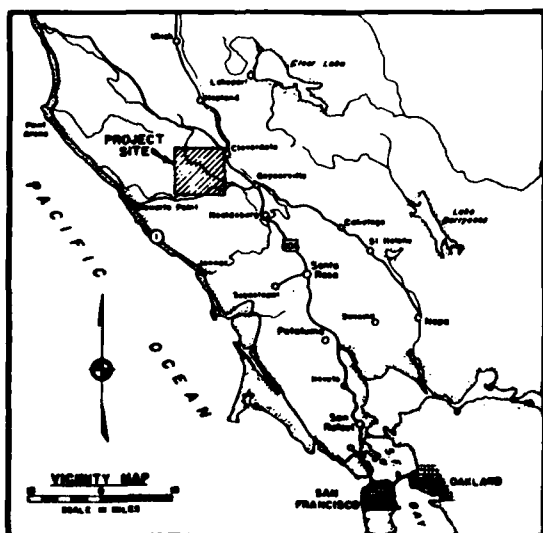
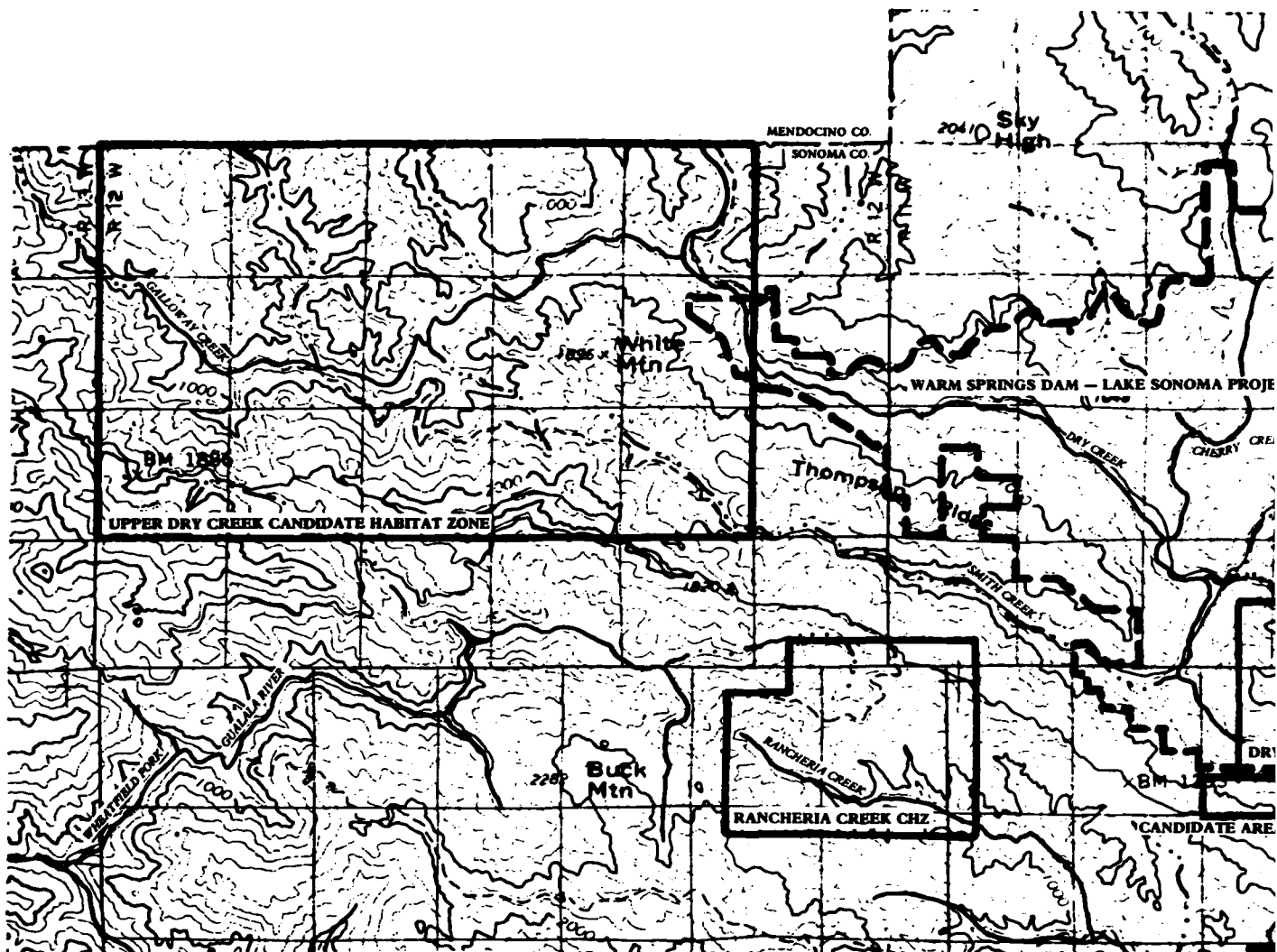
Local plant communities include redwood and Douglas fir forests, mixed evergreen forest, oak woodland and oak savanna, chaparral, riparian woodland, and grassland. In general, the more forested lands are found patterned along drainages and in areas containing deeper soils on the north-facing slopes. Chaparral and scrub, dominated by manzanita and chamise, appear in shallower soils on south-facing slopes (Royston et al. 1979:20). Oak-dominated woodland and savanna are more widely distributed on various aspects and along broad ridges.

Extensive grasslands, primarily the result of environmental alteration by Euro-American settlers, occur throughout the region. From the last half of the 19th century to the present, timber harvesting and the removal of trees and brush to create grazing land have greatly modified the region's vegetation. In addition, harvesting of tanbark for sale to the leather industry resulted in the removal of tan oak until the 1940s (Theodoratus et al. 1979:5,113).

A View of the Cultural Landscape

History of Land Use

Prior to Euro-American contact, there was widespread use of resources in the area by Southern Pomo and perhaps Kashaya Pomo groups. Clusters of



LOCATION OF CRITICAL AND CANDIDATE HABITAT ZONES

- CANDIDATE/CRITICAL HABITAT ZONE
- - - WARM SPRINGS DAM - LAKE SONOMA PROJECT AREA



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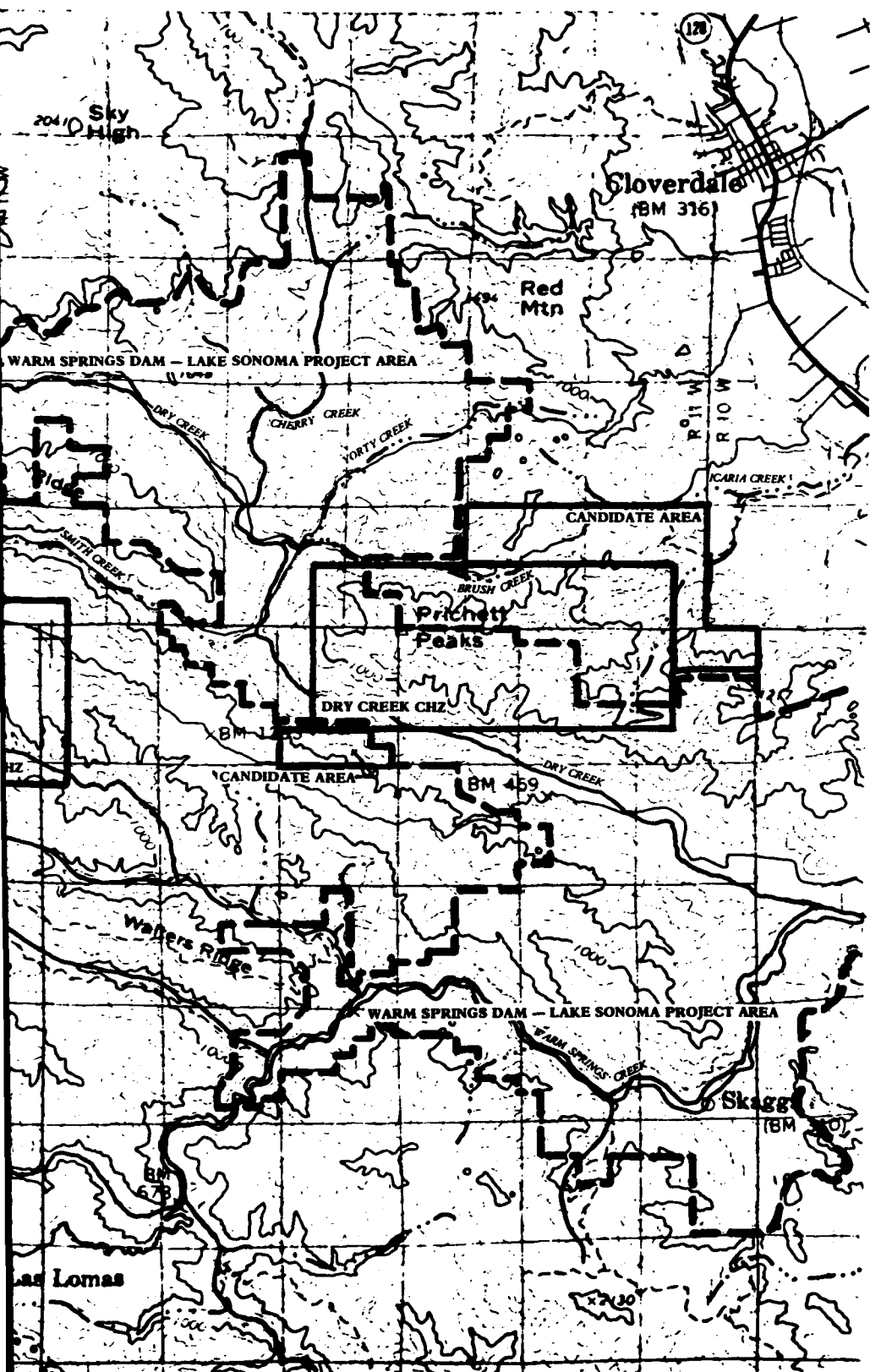
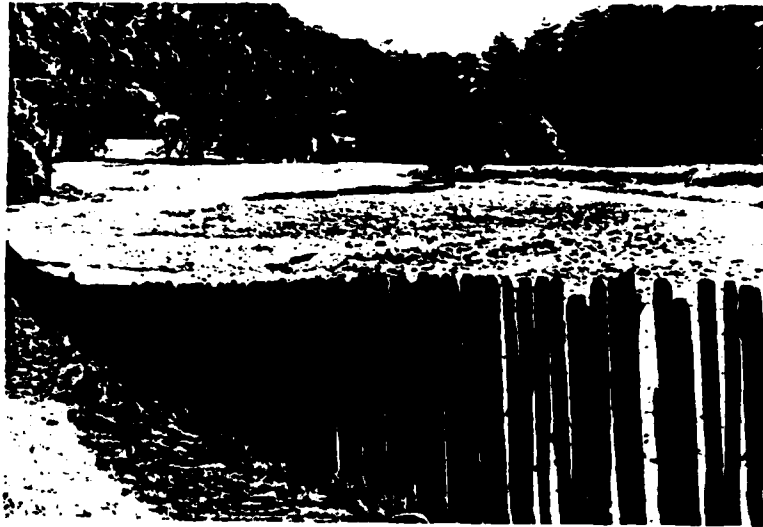


PLATE 1



Scenes in the Upper Dry Creek Candidate Habitat Zone

permanent habitation sites and special-purpose sites have been recorded throughout the Warm Springs Dam-Lake Sonoma project area. Archaeological site testing (Baumhoff and Orlins 1979) has revealed evidence of abundant human activity in the area for more than 5,000 years. Native Americans continued to occupy some villages in the valley throughout the 19th century, using the uplands primarily for hunting, fishing, and collecting plant materials.

Euro-American use of the uplands initially occurred in the mid-19th century, with the settlement of 160-acre homesteads. A few orchards, and perhaps vineyards, were developed, and some grain was raised for livestock, but inadequate soils and the lack of bottomland discouraged intensive agriculture. Instead, early settlers concentrated on cattle raising, changing their focus to sheep ranching in the 1870s. By the end of the 19th century, landholdings had been consolidated into much larger parcels, many trees had been removed to expand pasture, and the livestock-ranching landscape took shape.

The Dry Creek Uplands Today

The imposition of material culture through built forms in the Dry Creek Uplands has been minimal. This renders a scene that is partly wild, partly pastoral, and relatively undisturbed by human use. Aside from scattered erosional scars, it is a scene of aesthetic quality, appealing to an appetite for open space and countryside.

Historically, the isolation of these upland ranches was determined by rough topography, relative inaccessibility, and the land's inability to support intensive agriculture. A persistence of large landholdings and low density into the 1980s has occurred in the face of greater county population and development pressure, improved access, and recognition of an increased recreation potential. In part through a commitment to sheep ranching and other established uses, landholders have maintained a landscape free of residential subdivision, commercial recreation, and other incompatible uses.

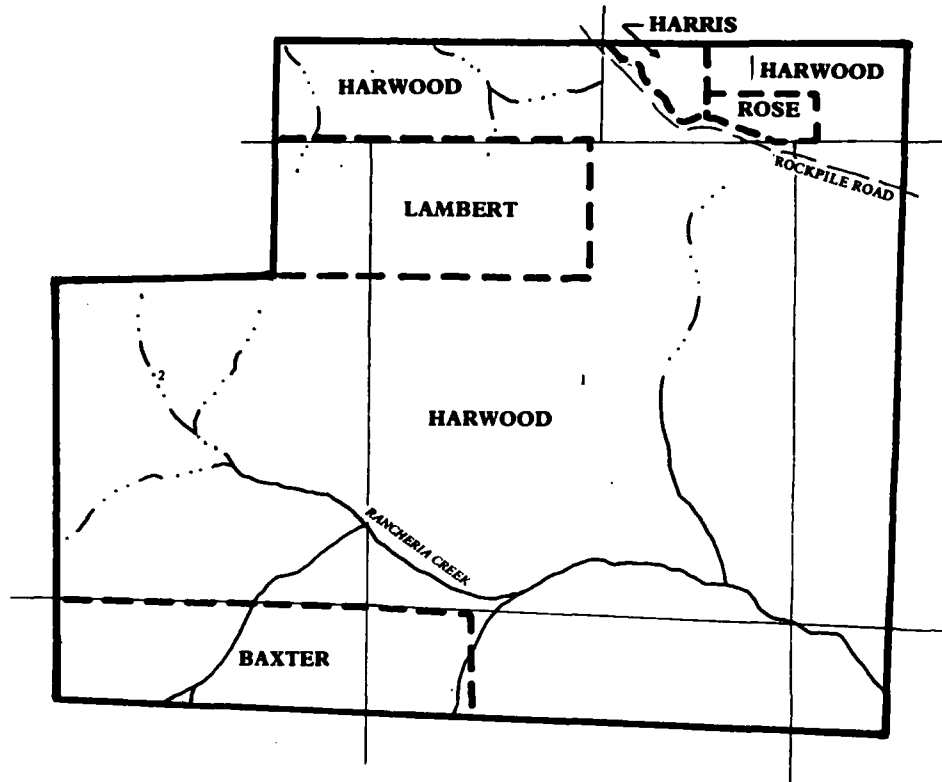
While the unspoiled character of the uplands has led many owners to use their properties as retreats, most landowners want the land to pay for itself. A recent decline in the sheep-ranching industry has given impetus

to the consideration of other land uses. Several of the larger ranches in the area have shifted their emphasis to beef-cattle operations or are considering such a change. Timber harvesting, primarily of Douglas fir, has become increasingly significant in the 20th century. Areas recently logged reveal new roads and harvest remnants, while other timber areas are in various stages of regrowth. Hunting, fishing, and vacationing are past uses which continue informally on private lands; leasing of hunting rights has become increasingly common as a major supplement to ranch incomes. Recent land-use changes in the Dry Creek Uplands include ranch subdivision and accelerated property turnover.

Rancheria Creek Critical Habitat Zone

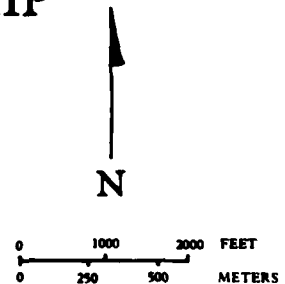
The Rancheria Creek CHZ encompasses an area of about 1,770 acres located 1 mile west of the future southwestern shore of Lake Sonoma. The land surface in this zone is deeply dissected by perennial Rancheria Creek and its tributaries. High cliffs, such as Deadman Cliff in the Rancheria Creek drainage, accentuate the steepness of the canyons. Heavy vegetation lines Rancheria Creek. The surrounding uplands open into oak woodland and grassland. Rills and gullies are evidence of erosion on steeper slopes, where woods were cleared for rangeland. Access to the Rancheria Creek CHZ is provided by Rockpile Road, which runs for a mile through the northeastern corner of the zone. There are also a few private jeep trails.

The Sonoma County Assessor's Office lists five owners in the Rancheria Creek CHZ (map 2). The majority of the zone is owned by the Harwood Corporation, a family operated lumber business headquartered in Branscomb, California. About three years ago, the Harwoods purchased 4,400 acres, approximately 1,417 of which lie within the Rancheria Creek zone, from a sheep rancher who had owned the land for 15 years. This land was exchanged with the agreement that it would be returned to the previous owner when timber harvesting was completed. The former owner continues to use the ranch for hunting and vacationing. When he reassumes title in July 1981, he plans to lease his land for cattle grazing. The Harwoods will retain timber rights, and intermittent harvesting will continue for the next few years. The Harwood Corporation also holds title to property in the Upper Dry Creek zone.

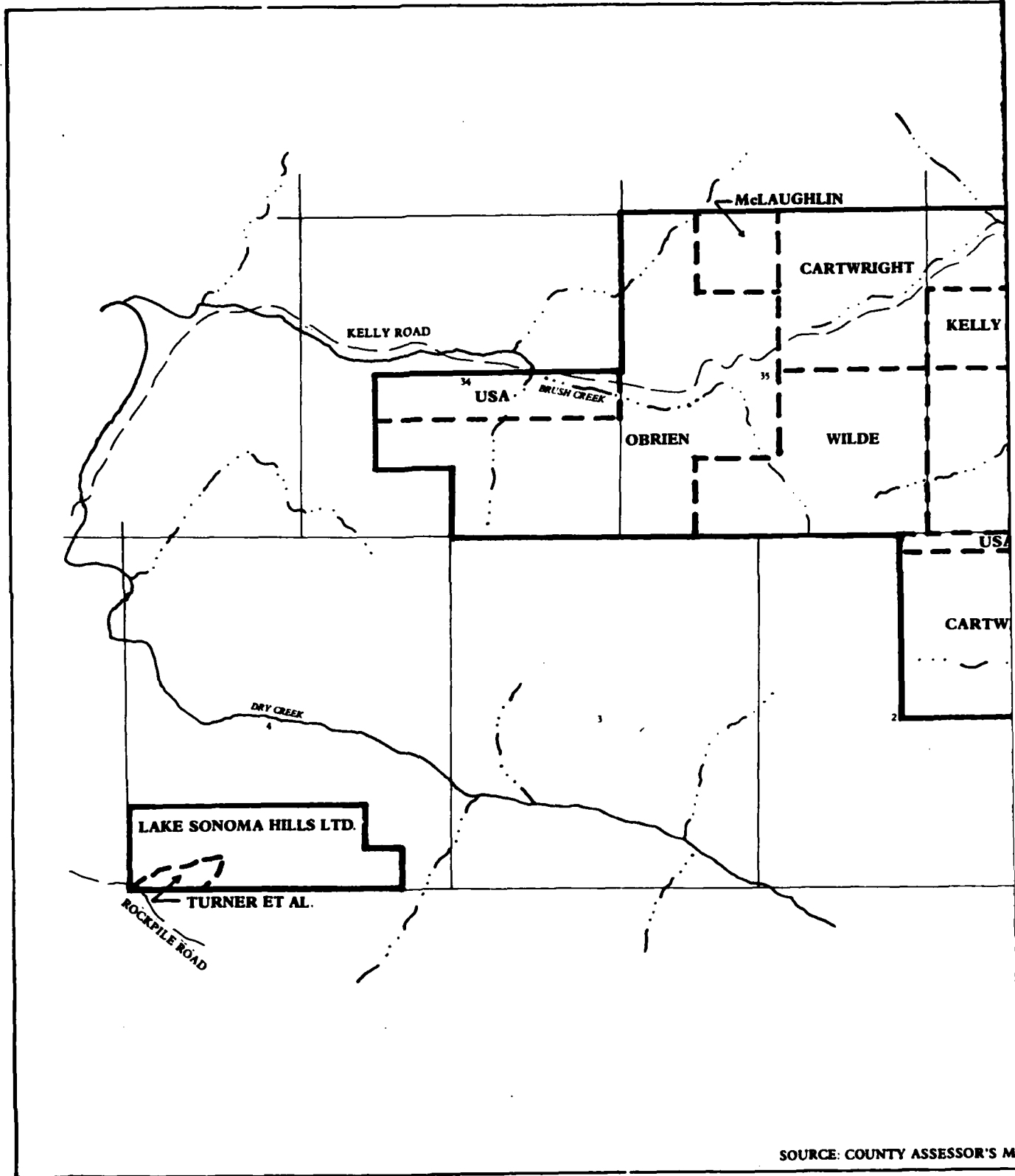


**RANCHERIA CREEK CRITICAL HABITAT ZONE
PRESENT LAND OWNERSHIP**

- CRITICAL HABITAT ZONE
- - - -** PROPERTY BOUNDARY
- — —** ROAD



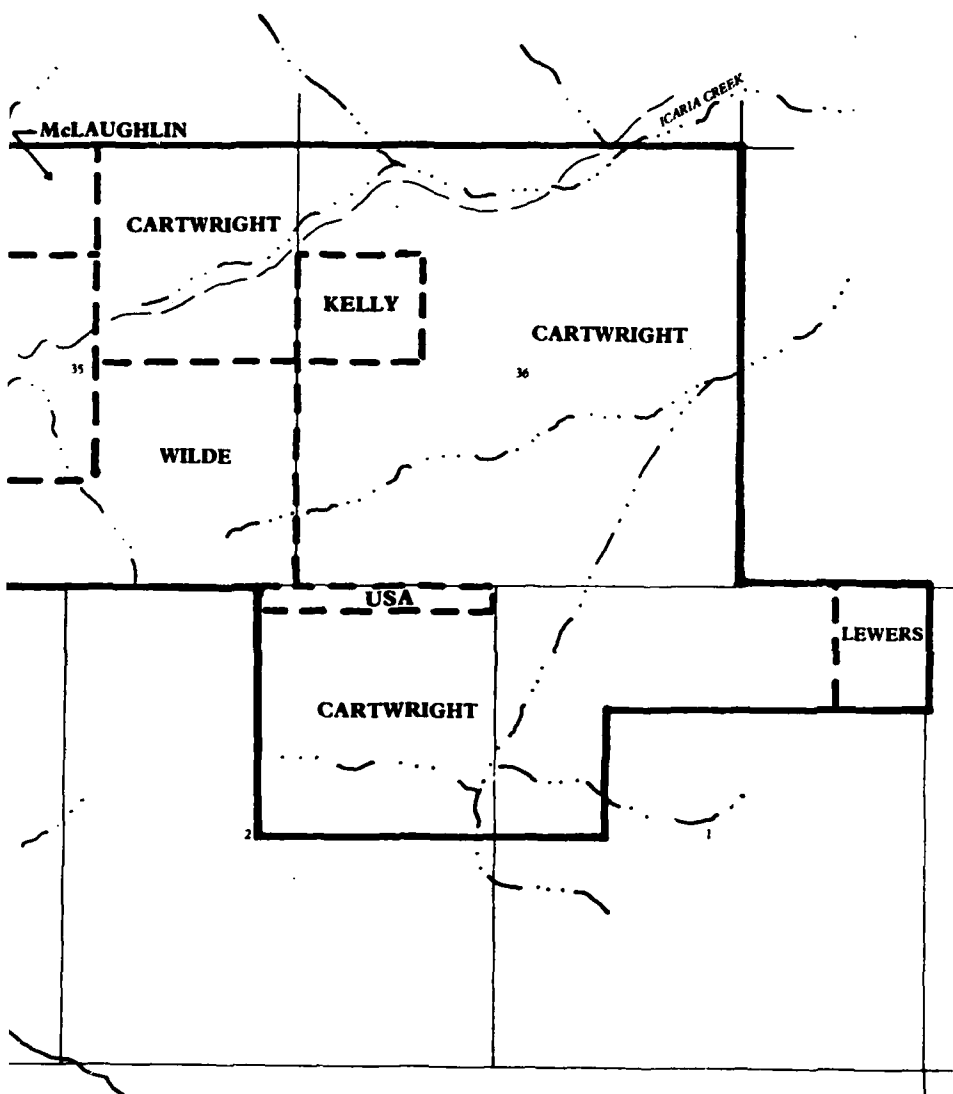
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MAP 3

DRY CREEK
CANDIDATE/CRITICAL
HABITAT ZONE

PRESENT
LAND OWNERSHIP

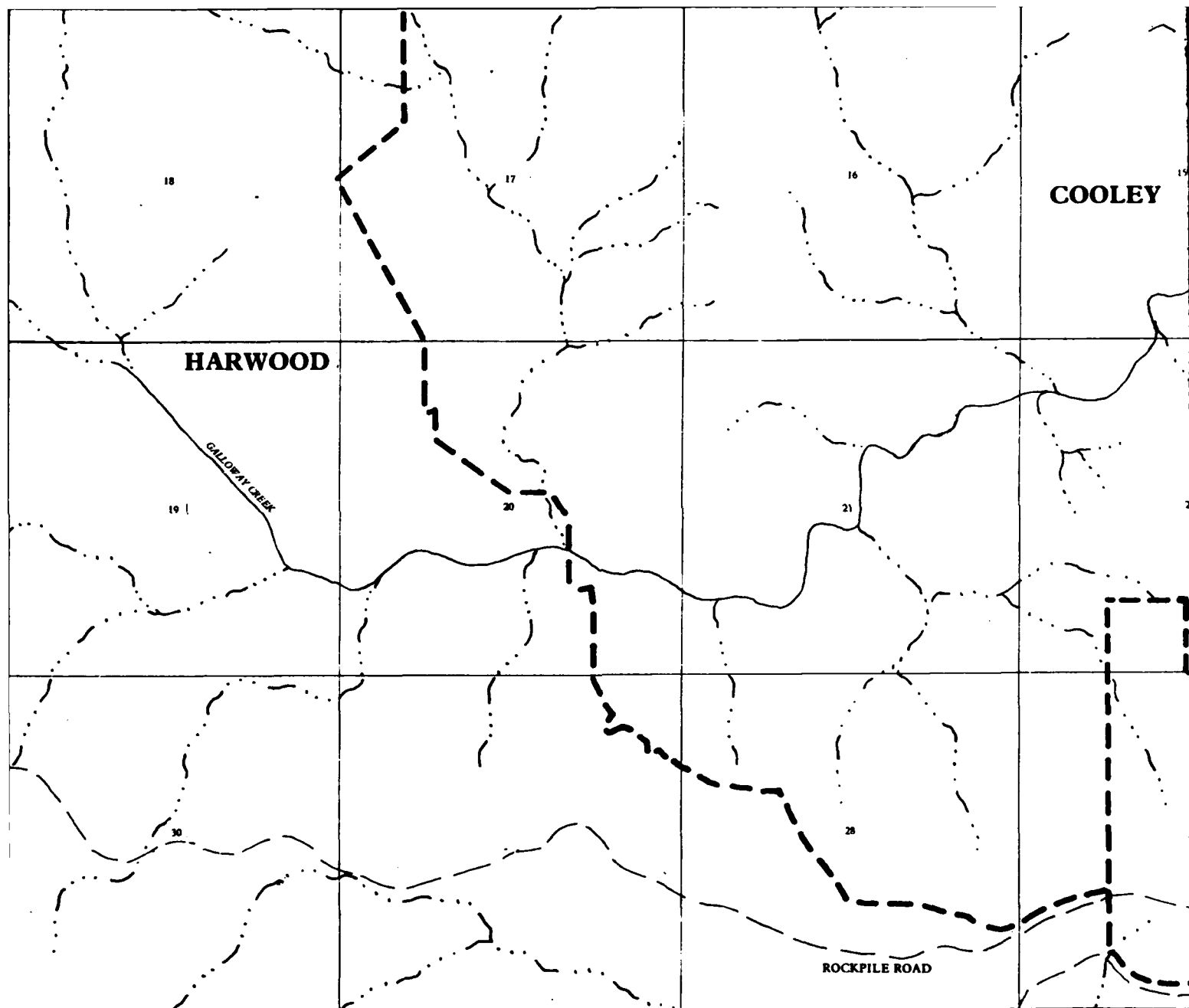


- CANDIDATE/CRITICAL HABITAT ZONE
- - - PROPERTY BOUNDARY
- ... ROAD



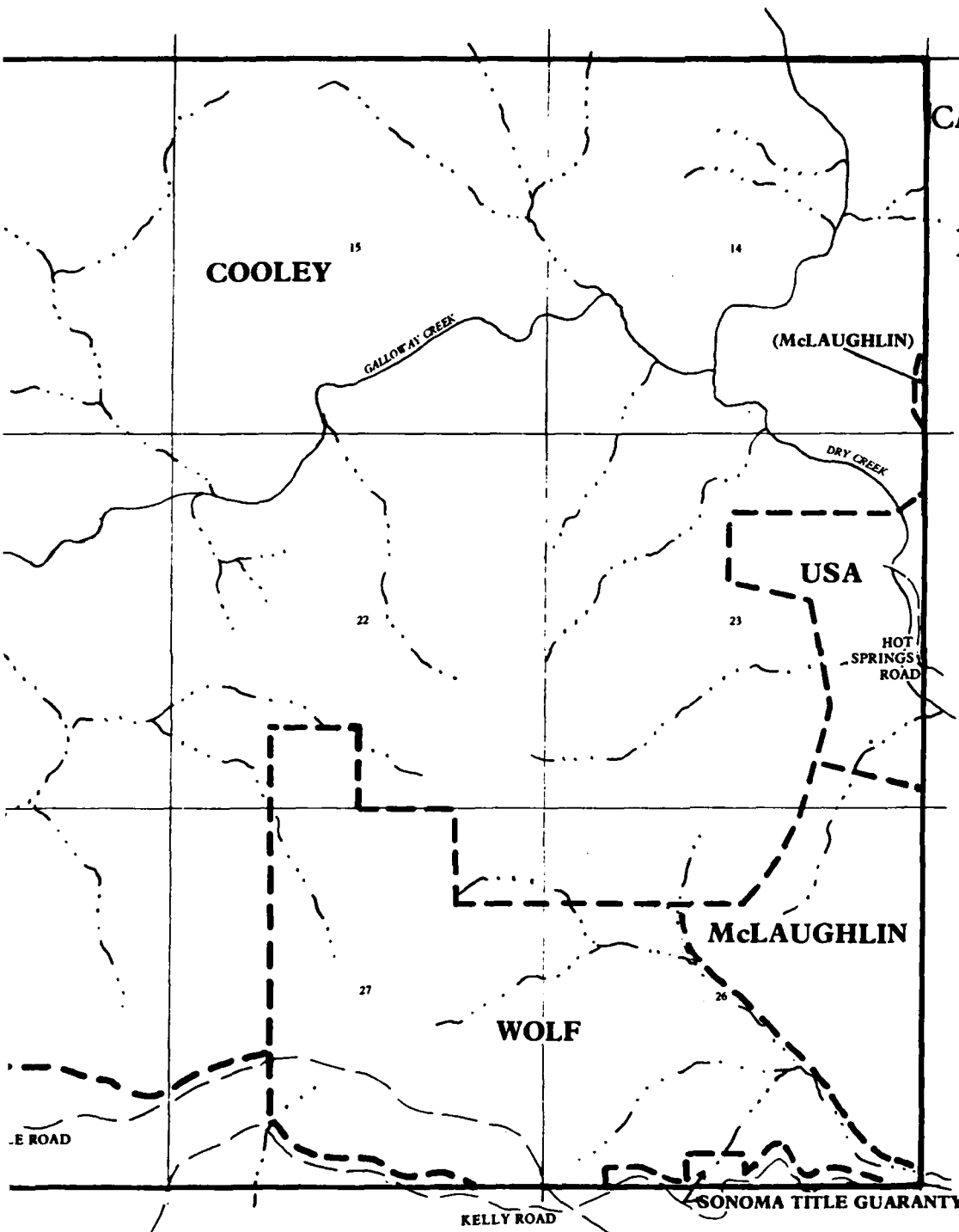
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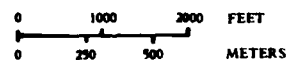


UPPER DRY CREEK
CANDIDATE HABITAT
ZONE

PRESENT LAND
OWNERSHIP



- CANDIDATE HABITAT ZONE
- - - PROPERTY BOUNDARY
- ROAD



A 259-acre parcel straddles the northwest corner of this CHZ. Approximately 155 acres of this parcel lie within the zone. The owner of this property has title to more land in the vicinity and has maintained his Rancheria Creek property for "open space" purposes for more than 20 years. He has fenced out livestock and harvests timber through a process he calls thinning and planting. The owner hunts on the land (there is a hunting cabin on the property) and encourages wildlife, while discouraging trespassing. He is sympathetic to the plight of the peregrine falcon and has cooperated with the U.S. Fish and Wildlife Service and the California Department of Fish and Game in observation and research efforts.

About 160 acres in the southwestern portion of the Rancheria Creek CHZ are part of a larger ranch which extends to the south. The owner of this property built his home just outside of the CHZ in 1975, when the Corps of Engineers condemned his family home on Skaggs Springs Road for the Warm Springs Dam-Lake Sonoma Project. He is the third generation in his family to own and manage property here. With his father, and later with his wife, he ran a sheep ranch. He sold off most of his sheep two years ago because of predation problems and is currently planning a cattle operation. The owner harvests timber on his property by selection and replanting.

Approximately 19 acres within the Rancheria Creek Zone are part of a 140-acre parcel purchased four years ago by its present owner. There are two dwellings on the land. The owner is a half-time resident of one; the other is occupied full time by a friend. The owner's use of the land is primarily recreational.

A remaining 19 acres in the Rancheria Creek zone is owned by a couple who now live out of the state but have had long-term ties with the area. They continue to keep this land as a hunting preserve.

Dry Creek Candidate/Critical Habitat Zone

The Dry Creek CHZ includes a portion of the central area of the Warm Springs Dam-Lake Sonoma Project area. The Critical Habitat Zone contains about 2,500 acres, over half of which is under Federal ownership. Candidate areas, attached to the northeast and southwest corners of this zone, account for about 1,100 additional acres. Pritchett Peaks, a high and

precipitous rocky ridge, stretches roughly 3 miles through the zone. Elevations range from just under 300 feet to almost 1,900 feet above sea level. The south slope of Pritchett Peaks alternates between low scrub and exposed rock, while the north side is heavily forested with conifers and mixed hardwoods. Oaks and grasses grow on the lower, less steep land. Dry Creek runs for about 1 mile in the Federally owned, southwestern portion of the zone. Brush Creek, an intermittent tributary of Dry Creek, drains from the northern slopes of Pritchett Peaks and flows west. Icaria Creek, an intermittent stream flowing east toward the Russian River, runs for about 1 mile through the northeastern portion of the zone. Kelly Road passes through about 2 miles of the northern part of this CHZ, and Rockpile Road intersects the zone at its extreme southwestern corner.

Excluding Federally held land, the zone is divided among eight owners (map 3). The largest parcel, approximately 1,100 acres on the zone's eastern side, was purchased in 1959 by a San Francisco physician whose aim was to provide a ranching lifestyle for his family. Much of the family's vacation time is spent working on the ranch. Six full-time residents include relatives and caretakers. Initially, the owner ran sheep and planted grapes. Now he has switched to cattle and has expanded his vineyard. In addition, he leases out hunting rights to his land.

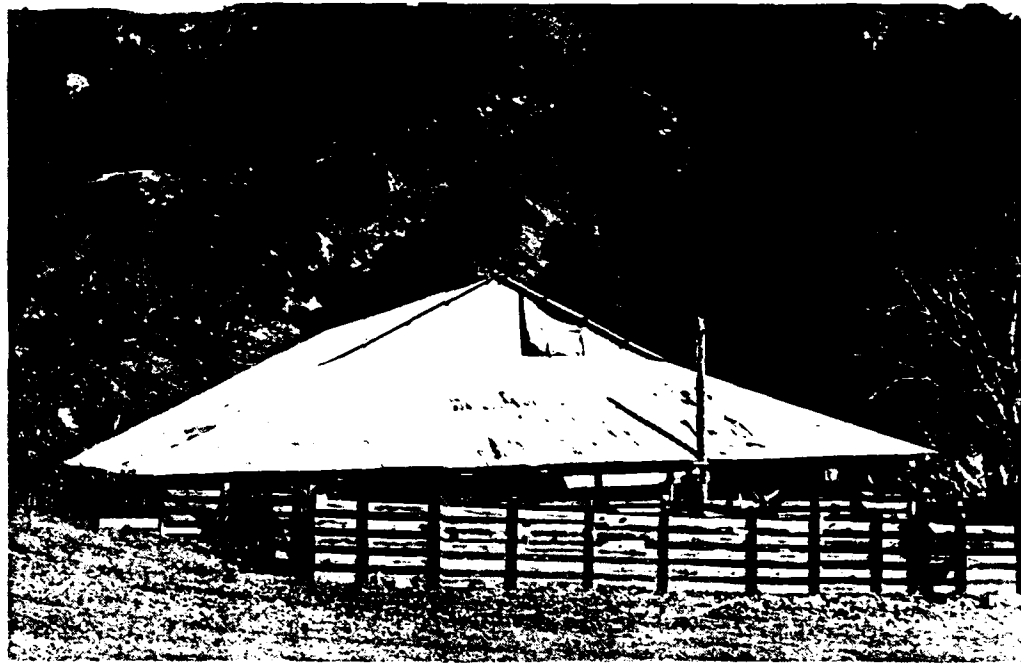
Two hundred acres on the northern side of Pritchett Peaks was recently purchased by a Cloverdale family. The owners plan to repair a hunting cabin on the property to be used as a summer rental. Eventually they hope to move to the land.

Approximately 220 acres in the southwestern corner of the Dry Creek zone are part of 1,900 acres of land which were purchased four years ago by seven investors. This land is presently leased for sheep raising. When they sell, the owners expect to subdivide into 100-acre parcels, hoping to appeal to persons wanting rural estates.

Forty acres on the northern edge of the zone are part of a larger ranch which has been maintained by the current owner for the past 50 years. It is primarily a sheep ranch but reportedly will be converted to a cattle operation. This ranch extends northwest of the Dry Creek zone; its western reaches overlap into the Upper Dry Creek Candidate Habitat Zone.

The son and daughter of a Rancheria Creek CHZ property holder own about 30 acres bordering Rockpile Road in the southwestern corner of the

PLATE 2



Top: Barn in the Upper Dry Creek Candidate Habitat Zone

Bottom: Bunkhouse on the Cooley Ranch

Dry Creek zone. There is a house on this property which is presently occupied by caretakers.

Remaining land in the Dry Creek zone, approximately 475 acres, is divided among three owners. These owners were not consulted, and their use of the land is not known.

Upper Dry Creek Candidate Habitat Zone

The Upper Dry Creek Candidate Habitat Zone is located north and west of the other two zones, about 7 miles west of Cloverdale. It is the largest of the three, with about 9,600 acres. The eastern end of the zone contains approximately 120 acres of Federally owned land. Most of the zone is drained by Galloway Creek, which flows west to east and joins upper Dry Creek in the zone's northeastern corner. Uplands are formed by Mt. Tom, White Mountain, and the west end of Thompson Ridge. Elevations range from 600 to 2,500 feet above sea level. Mixed forests and woodland are generally confined to drainages and north-facing slopes. Oak savanna, chaparral, and grasslands are interspersed throughout the remaining areas. Some of the steeper slopes in this zone show signs of erosion. Both Rockpile and Kelly roads provide access to the southern portion, linking this zone with the other two CHZs. Hot Springs Road enters the eastern side of the zone.

Private land in the Upper Dry Creek zone is split among five owners (map 4). One owner has title to about 5,200 acres covering the northeastern quadrant of the CHZ. This is the southern part of a 16,000-acre ranch which extends into Mendocino County. The owner inherited this ranch from his father, who had owned it since about 1910. It has always been ranched for sheep, and the present owner would like to continue the sheep operation. Controlled burning is practiced on the ranch to improve the rangeland. The owner lives in Petaluma, while maintaining a house on the ranch; he presently employs a ranch caretaker. In the past, the owner did small-scale timber harvesting, and he may expand use of timber resources in the future. Rights have been leased to 3,000 acres of this ranch for hunting, but also to discourage trespassers.

Approximately 3,220 acres on the western side of the zone are part of the larger Rockpile Ranch, owned for the past four years by the Harwood Corporation. The Harwoods are managing this ranch under the principle

of multiple use. They have harvested timber and are in the process of re-planting. They are also beginning to operate the ranch for beef cattle. They allow and encourage friends and employees to hunt and fish this land. The Harwoods have set aside 1,000 acres for possible subdivision into smaller parcels for second-home sites. Fences, barns, and the ranch house, which were somewhat deteriorated at the time of purchase, have been repaired by the Harwoods. A Federal trapper and his family presently live on Rockpile Ranch.

On the southeastern side of the Upper Dry Creek Zone, 750 acres have been maintained by the current owners since 1935. This land is primarily operated as a sheep ranch. The owners also raise cattle for their own consumption and practice intensive gardening on this property. In the past, the owners were involved in the lumber industry and have harvested trees from this property. The owners live on the ranch on a half-time basis; they also have a home in Santa Rosa.

About 290 acres on the east side of this zone represent the western portion of the sheep ranch which extends into the Dry Creek CHZ.

The Sonoma Title Guaranty Company of Santa Rosa holds title to three small parcels adjacent to Rockpile Road. These parcels total approximately 20 acres.

Government Involvement in the Habitat Zones

Although property owners and residents have played major roles in shaping the unique character of the area, the involvement of governmental regulatory agencies has had an important effect on land-use policy and practices. While Sonoma County's land-use regulations exert the most immediate governmental restrictions on landowners, State and Federal agencies also have regulatory involvements in the CHZs. At present, there is no formal organization through which property owners in the Dry Creek Uplands represent their interests to governmental agencies.

County

Land-Use Regulations

Sonoma County, through a five-member Board of Supervisors, guides and

enforces land use on a countywide basis. Goals, policies, and recommendations for long-term development and resource use within Sonoma County are delineated in the Sonoma County General Plan, prepared by the Department of Planning and adopted by the Board of Supervisors in January of 1978. The General Plan assigns an "undeveloped" land-use category to a large region in the northwest part of the county, a region which encompasses the CHZs. "Undeveloped" is described as follows:

Undeveloped land is characterized by a low intensity of human utilization and includes forests, grasslands, mountainous areas, and other lands not predominantly used for agriculture, except for such extensive activities as the grazing of sheep or beef cattle. Residences are related primarily to the use of the land; they are scattered at a very low density throughout these areas (the density averages one dwelling unit per 450 acres countywide). A greater density (as much as one unit per twenty acres) may be permitted in certain areas. Most of the people in undeveloped areas live at these higher densities, whereas large areas of land remain essentially uninhabited. Open land is located predominantly on hills and mountains; the northwest part of the county is largely classified as undeveloped (Sonoma County Department of Planning 1978:29).

Minimum lot sizes in "undeveloped" areas generally range between 40 and 100 acres. Ideal conditions, i.e., gentle slopes, low fire hazard, and conformance with localized existing parcelization, may warrant greater densities.

For more specific planning purposes, the county is divided into zoning districts. Much of the zoning was established before the adoption of the General Plan, however, and is currently being brought into conformance with land-use categories as designed by the plan. County zoning districts assigned to parcels in the CHZs are shown on maps 5-7; they are described below.

AE- Exclusive Agricultural District permits one single-family dwelling, one guest house, livestock farming, seasonal leasing of hunting rights, outdoor growing and harvesting, one stand for the sale of agricultural products, game preserves, and accessory buildings. Under permits and conditions, the following may also be permitted: additional dwellings, farm labor camps, mobile homes, raising and breeding of domestic animals, dairies, hog and pig farming, livestock feed and sales yards, commercial stables, commercial aquaculture, hunting clubs, wholesale nurseries, agricultural and animal-

processing plants, fertilizer plants or yards, lumber mills and associated uses, private landing strips, schools and other community service facilities, public utility facilities, and commercial excavation (Sonoma County Department of Planning n.d.).

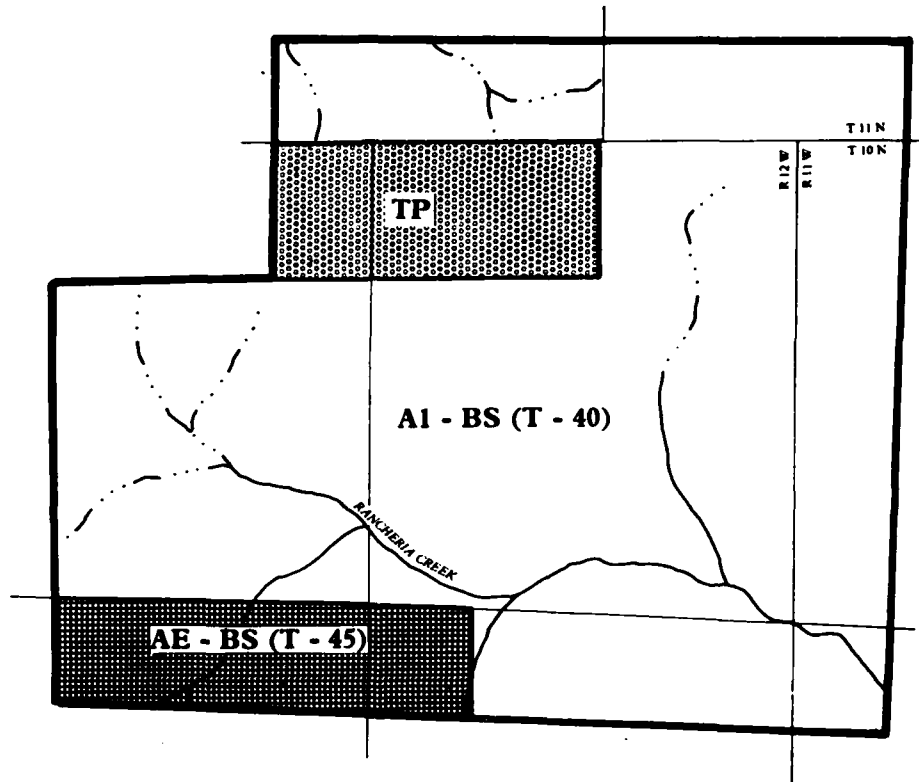
All of the parcels zoned AE within the CHZs are under agricultural-preserve contracts with the county through the Williamson Act. This program provides tax reductions for owners who agree to maintain an agricultural use. In agricultural preserves, minimum lot sizes, determined on a case-by-case basis, depend upon the area necessary for a viable agricultural unit and the income requirements of the contract. A 10-year phaseout period is required to remove land from its agricultural-preserve status.

AE-B5, 100 acres denotes an exclusive agricultural district with special building site area regulation, requiring a 100-acre minimum lot size.

AE-BS, T-45 signifies an exclusive agricultural district with densities dependent upon slope characteristics. Slope density table number 45 is used to compute minimum lot sizes.

A1 - Primary Agricultural District permits single family dwellings, multi-family dwellings, dwelling groups, home occupations, guest houses, domestic livestock farming, outdoor growing and harvesting, accessory buildings, game preserves and one stand for the sale of agricultural products. Conditional uses are as follows: Home-care facilities, mobile homes, 4H and FFA animal husbandry projects, planned developments and condominiums, farm labor camps, raising and breeding domestic animals, dairies, livestock feed and salesyards, kennels, commercial stables, plant nurseries, agricultural and animal-processing plants, lumber mills and associated uses, non-commercial clubs, schools, community service facilities, public airports and private landing strips, cemeteries and mausoleums, public utility facilities, recreational vehicle parks, campgrounds, medical facilities, outdoor theatres and racetracks, and commercial excavation (Sonoma County Department of Planning n.d.).

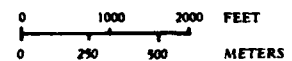
A1-BS-T-40 denotes a primary agricultural district with minimum lot size dependent upon slope characteristics. Average slope of the land and county slope density table number 40 is used to compute minimum lot sizes.



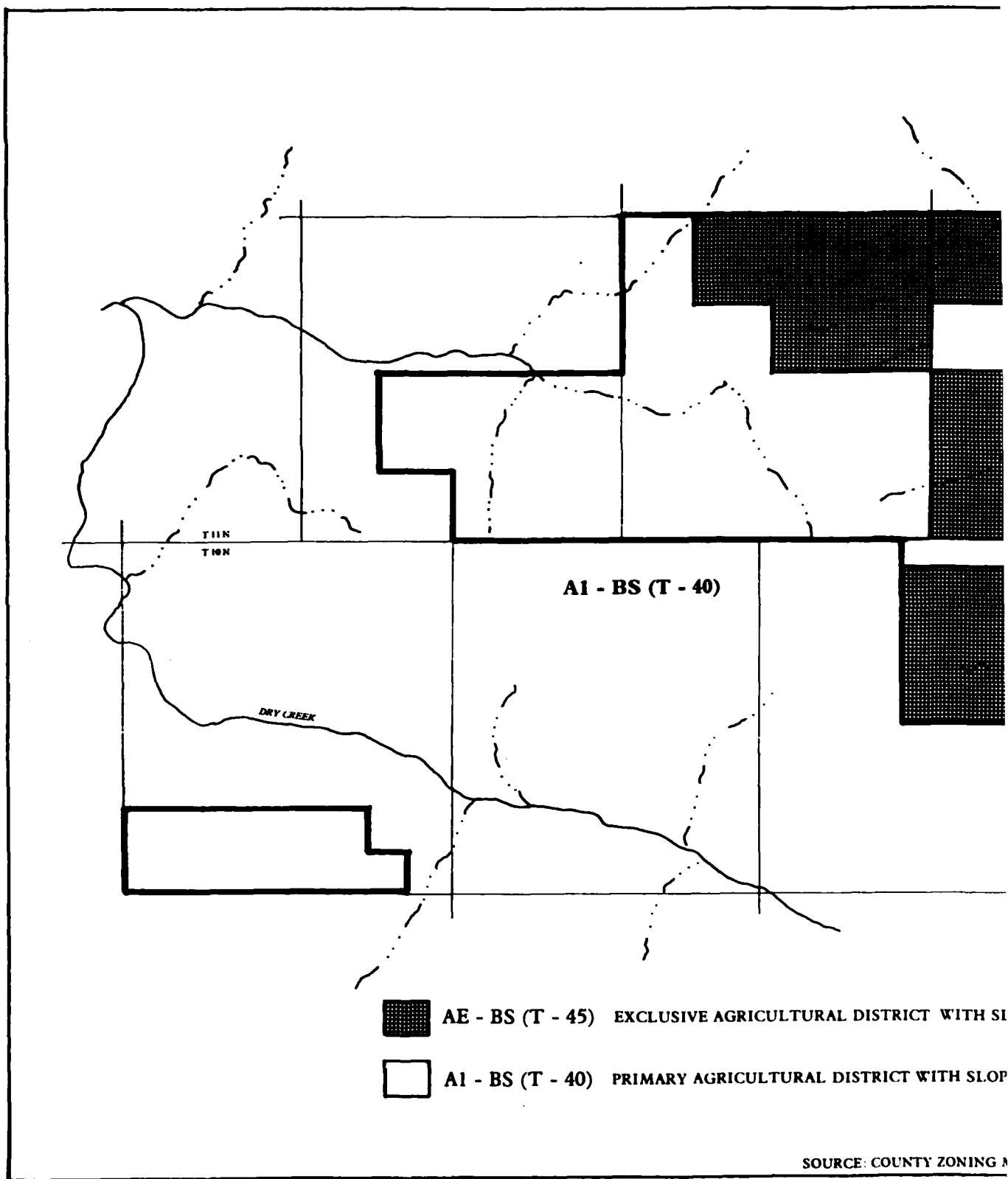
RANCHERIA CREEK CRITICAL HABITAT ZONE

ZONING

- AE - BS (T - 45)** EXCLUSIVE AGRICULTURAL DISTRICT WITH SLOPE/DENSITY BUILDING SITE REGULATION
- A1 - BS (T - 40)** PRIMARY AGRICULTURAL DISTRICT WITH SLOPE/DENSITY BUILDING SITE REGULATION
- TP** TIMBER PRESERVE



SOURCE: COUNTY ZONING MAPS

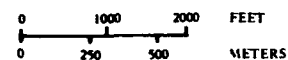


DRY CREEK
CANDIDATE/CRITICAL
HABITAT ZONE

ZONING

AE - BS (T - 45)

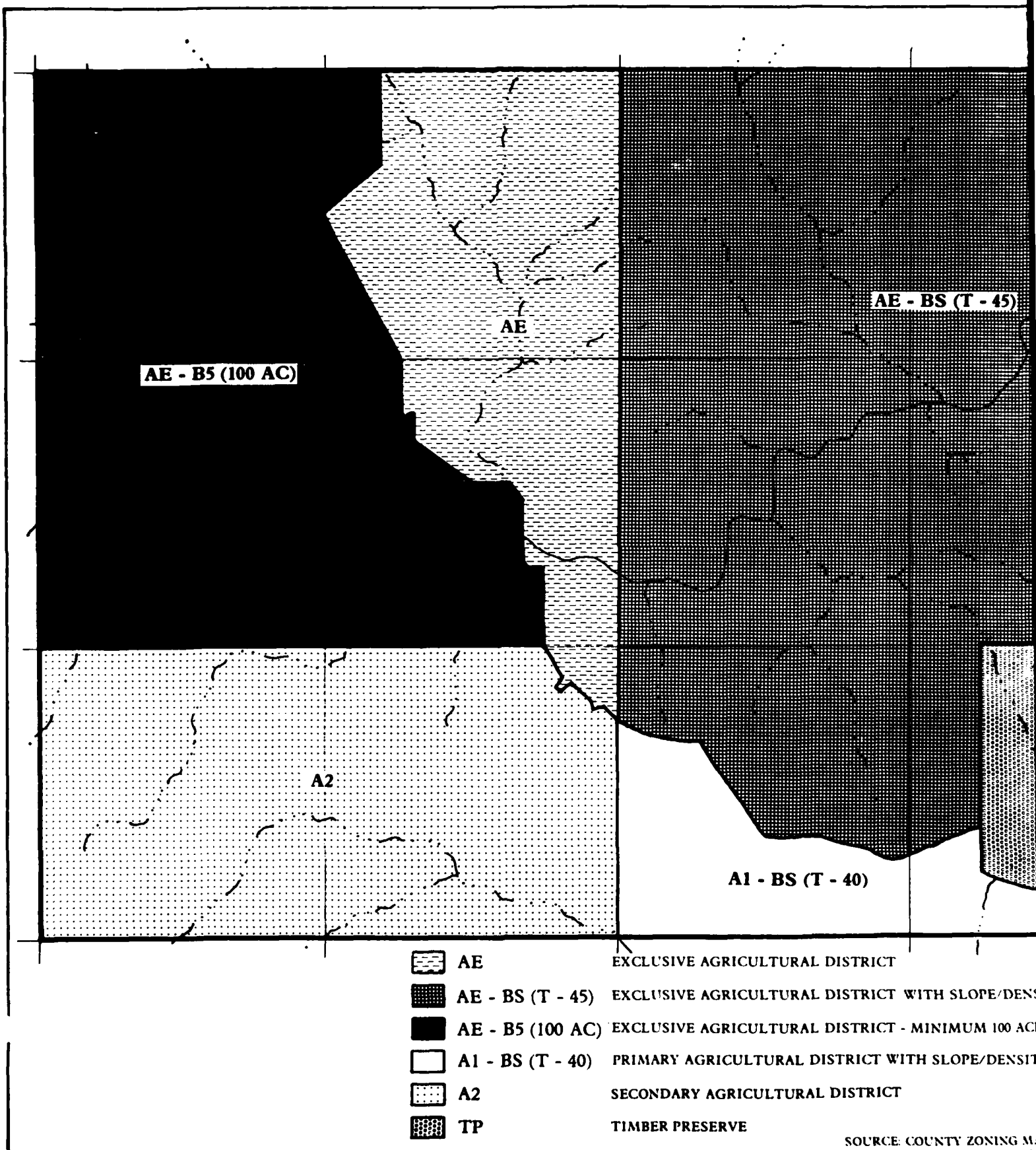
40)

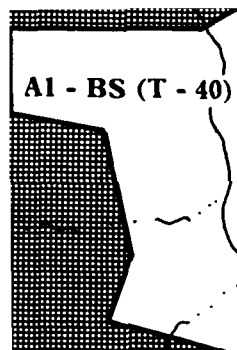


AE AGRICULTURAL DISTRICT WITH SLOPE/DENSITY BUILDING SITE REGULATION

BS AGRICULTURAL DISTRICT WITH SLOPE/DENSITY BUILDING SITE REGULATION

SOURCE: COUNTY ZONING MAPS





A2 - Secondary Agricultural District permits all unconditional uses in the A-1 district subject to a 2-acre per dwelling minimum. By permit, all conditional uses listed for the A-1 district may be allowed. In addition, all uses for C-1, Neighborhood Commercial District; C-2, Retail Business District; or C-3, General Commercial District may occur with a use permit. Junk yards and outdoor advertising also require a use permit (Sonoma County Department of Planning n.d.).

TP - Timber Preserve District requires management for commercial production and harvest of trees and permits removal of trees; unimproved recreational and educational uses; management for watershed, fish and wildlife; bee-keeping, grazing and hunting where these are incidental to the primary use; electric, water, or communications facilities; equipment storage; production of compatible forest products, such as Christmas trees; and one single-family dwelling with accessory buildings. Under conditions, additional dwellings, saw mills and associated uses, development of natural resources such as mining, aircraft landing facilities, and campgrounds and resorts may be permitted.

Timber preserve zoning allows benefits to owners of timber preserves by imposing only a yield tax at the time of harvest. Simultaneously, it provides conservation and protection of timber-producing lands. As with agricultural preserves, removal of land from a timber preserve requires a 10-year phaseout period (Sonoma County Department of Planning n.d.).

Trapping Program

Until recently, the Sonoma County trapping program benefited sheep ranchers plagued by coyotes and other predators. The program, which began to decline in 1970, was eliminated in 1978. (A Federal trapping program continues in the uplands.)

Other Governmental Agents

More limited regulatory powers affecting the CHZs are within the jurisdiction of the State of California through the Department of Fish and Game and the Department of Forestry. Fish and Game regulates hunting, fishing, and trapping activities, which are significant functions within the

CHZs. The Department of Forestry is responsible for regulating controlled burning and for monitoring timber harvests to ensure compliance with state regulations.

With the construction of Warm Springs Dam-Lake Sonoma, the Federal Government, through the Army Corps of Engineers and the U.S. Fish and Wildlife Service, has come to have major associations with the areas. Federal interest in the study areas, including rerouting of roads and potential mitigation measures for the peregrine falcon habitats within the CHZs, are further governmental involvements that may have a profound effect on future land use.

Summary

The 15,000 acres of Candidate/Critical Habitat Zones consist of remote and rugged land. Historic land use pivoted around livestock ranching, resulting in the removal of trees and the creation of extensive grassland. Privately owned CHZ land, approximately 13,500 acres, is presently divided among 16 parties. Private holdings within the zones range in size from 19 acres to 5,200 acres. In many cases, properties within the CHZs are parts of larger ranches which extend outside the zones. The primary uses of these lands are ranching, timber harvesting, and hunting. Because of the remoteness of the area, several owners also use their properties as places of retreat. There are not more than a dozen full-time residents within the CHZs. By including this region within the "undeveloped" land-use category, the Sonoma County General Plan supports the preservation of low density and non-intensive human use of the land. Involvement of the Federal Government within the CHZs could have a major effect on the future land use in the Dry Creek Uplands.

CHAPTER 2

PREHISTORIC OVERVIEW AND ARCHAEOLOGICAL SENSITIVITY

Introduction

The candidate/critical habitat zones (CHZs) border and partly overlap a district which has been subject to more intensive archaeological survey, excavation, and analysis than any other in the California North Coast Ranges--the Warm Springs Cultural Resources Study (WSCRS) area. Several prehistoric archaeological sites have been recorded within the Federally owned lands in the CHZs. Only one site (CA-SON-566) was recorded within private CHZ lands; it was partially tested as part of the WSCRS. For purposes of brevity, this report will not provide detailed descriptions of sites contained in the overlap area. Some information on these sites, however, is included in a general review of work done for the Warm Springs study. Information on each site is recorded in table 1.

In contrast to the Federally owned lands of the WSCRS area, the present areas of concern have received no formal archaeological investigations of any kind. Results of the WSCRS work, therefore, will be used as indicators of the varieties of prehistoric cultural resources likely to exist within the CHZs and the kinds of research questions that information obtained from them might be used to address. It should be noted that WSCRS and CHZ lands are not directly comparable, as they contain different proportions of the region's environmental zones. The WSCRS area contains major watercourses with extensive terraces, as opposed to the many minor streams and small terraces within the CHZs. Unlike most of the WSCRS area, ridge-lands, steep canyons, and a generally more rugged terrain characterize large portions of the CHZs.

As the WSCRS work provides such a large regional framework, this overview will not include information of a broader areal nature, except as it might relate to specific research problems. Archaeological overviews encompassing a wider area are found in Fredrickson (1973), Baumhoff (1976), and Stewart (1981).

Materials analysis and final report preparation for the prehistoric archaeological component of the WSCRS area is still in progress. Thus, the

interpretive portion of this overview and of table 1 should be viewed as tentative and subject to refinement or change.

Archaeological Overview

Sixty-two prehistoric sites were tested as a part of the WSCRS. Baumhoff and Orlins (1979) discussed their findings in relation to three areas of inquiry: chronology and debitage ratios; territory and population; and site specialization or land use. These areas subsume more specific research directions which were described in a report on the archaeological survey and testing of the project area (Baumhoff 1976) and in a research design for these prehistoric archaeological sites submitted to the U.S. Army Corps of Engineers (Baumhoff 1978).

Chronology and Debitage Ratios

Baumhoff and Orlins (1979:2-6) proposed a cultural sequence based loosely on one developed for the North Coast Ranges by Fredrickson (1973). Their chronology involved the following major periods and associated assemblages:

Post Pattern	10000-6000 B.C.	crescent stone, fluted point
hiatus	6000-5000 B.C.	
Early Borax Lake	5000-3000 B.C.	square-stemmed Borax Lake point, early side-notched point, large concave-based point, milling-stone
Late Borax Lake	3000-500 B.C.	Excelsior point, leaf-shaped point, millingstone, mortar and pestle
Early Houx	500 B.C.-A.D. 1200	small Excelsior point, small leaf-shaped point, small side-notched point, mortar and pestle
Late Houx	A.D. 1200-historic	same as Early Houx, plus Gunther-barbed point

Since temporally diagnostic projectile points and grinding tools were often not recovered from the small test excavations at each site, a further-criterion for dating--the ratio of chert-to-obsidian debitage--was devised to

TABLE 1
SUMMARY OF WARM SPRINGS PREHISTORIC ARCHAEOLOGICAL SITES

Site #	Type ¹	Location	Recovery ²	Soil-Vegetation ³	Size ⁴	Time ⁵	Other
<u>Western Group</u>							
565*	midden	above confluence of Rail Cr and Dry Cr	mano, scraper, hopper mortar	2	80x50m		important as a large site farther up the drainage
564*	surface	n terrace above Dry Cr	tested, poor	2	small		partly eroded away
566*	midden petroglyph	s flat by intermittent stream	tested, medium	2	medxdeep	Houx	test excavation not completed
567	hamlet	n 2nd terrace Dry Cr	tested, medium	2	medxdeep	Houx	historic component
575	shallow midden	nw terrace above Dry Cr, nr pool	tested, poor	2	smxshallow	Houx	eroding
572	station	n 2nd terrace Dry Cr, nr pool	tested, rich	2	smxdeep	Borax Lake, Houx	grinding area nr creekbed
571	station	n 2nd terrace Dry Cr, nr pool	tested, rich	1	smxdeep	Late Borax Lake, Early Houx	grinding area nr creekbed
570	petroglyph	n bank Dry Cr	--	2		Late Borax Lake, Early Houx	associated w 568
568	hamlet petroglyph	n 1st terrace Dry Cr, nr 2 streams	tested, medium	1	medxdeep	Houx	housepits (3)
<u>Upper Warm Springs Group</u>							
543	hunting blind	n side Warm Springs Cr	tested	2	3.5x2.8x .47m		HA informants suggest might be baking oven or acorn cache
544	hamlet	nw 2nd terrace Warm Springs Cr, nr Little Strawberry Cr	tested, medium	2	40x100mx deep	Borax Lake, Houx	Kashaya permanent village, "Serene Flat" homestead
545	shallow midden	n bank Rancheria Cr	tested, poor	2	90m ² x30cm	Late Houx	Kashaya camp associated w 544
546	scatter	n bank Rancheria Cr	augered, poor	4/2	3x5m	late?	historic site
547	midden	n bank Rancheria Cr	tested, medium	2/4	30x30mx deep	Post Pattern?, Borax Lake, Houx	historic site
550	hamlet	bank of tributary to Rancheria Cr	tested, medium	2	850m ² x shallow	Late Houx	housepits (3)
549	shallow midden	e bank Rancheria Cr, nr Warm Springs Cr	tested, poor	2 1/4	1700m ² x70cm	Houx	
551	hamlet	nw bank Warm Springs, nr confluence	tested, medium	2	45x30x1.2m	Late Borax Lake, Early Houx	
<u>Lower Warm Springs Group</u>							
594	scatter	nr hot springs and Little Warm Springs Cr	surface only	2	200x50m	Borax Lake, Houx	"Kahowani," Skaggs Springs resort, highly disturbed
558	shallow midden	w bank Little Warm Springs Cr	tested, poor	2	525m ² x20cm	Late Houx	
561	hunting blind	small ridge	tested, poor	2	6x6x.47m		
573	hunting blind	n bank Warm Springs Cr	rock-lined depression	2	2.4x1x.3m		
556	station	n bank Warm Springs Cr, nr confluence w Little Soda Cr	tested, medium	2	100x35x2.2m	Borax Lake, Houx, historic	housepit (1); radiocarbon: 2450±100 BP, homestead in vicinity
557	shallow midden	s bank Little Soda Cr	tested, poor	1	25m ² x40cm		recently disturbed
559	shallow midden	ne bank Little Soda Cr, confluence 3 drainages	tested, poor	2/1	80m ² x40cm	Early Borax Lake, Early Houx	eroded, historic site

*located within the CHZs

TABLE 1 (Cont.)

Site #	Type ¹	Location	Recovery ²	Soil-Vegetation ³	Size ⁴	Time ⁵	Other
555	shallow midden	s bank Warm Springs Cr, conf w Seven Oaks Cr	tested, medium	2/1	600m ² x50cm		lamp, basketry site, homestead site
553	hamlet	n bank Warm Springs Cr	tested, medium	2	2 areas, large	Houx, historic	bottle-glass artifacts
554	chert quarry	along both sides of intermittent stream	tested, no midden	2	250x50m		homestead site
<u>Central Section</u>							
562	station	nr confl of Smith and Dry Cr, n bank	augered, no midden	1/2	2m dia.x80cm		housepit (1)
574	probable hunting blind	s bank Dry Cr below Pritchett Peaks	circular depression	1	2.5x.6m		
598	hamlet	s bank Dry Cr	tested, no midden	1/3	70x30m	Late Houx, c.1850	housepits (14), "Amacha," possible ceremonial house
548	shallow midden	n bank Dry Cr	tested, poor	3	26m ² x30cm		
542	shallow midden	n bank Dry Cr	tested, poor	2	30x30m	Borax Lake, Late Houx	disturbed
599	hunting blind	s bank Dry Cr, nr confl w tributary	--	4	2x1.2mx80cm		
600	shallow midden	n bank Dry Cr, nr confl w Warm Springs Cr	tested, poor	4	1:0x60x shallow	Borax Lake, Houx	"Polosha Chundukwani" or "Takoton"?, highly disturbed, homestead
560	shallow	e bank Warm Springs Cr	tested, poor	2/1	300m ² x20cm		
<u>Eastern Group</u>							
593	village petroglyph	n bank Dry Cr and stream	tested, rich	2	largexdeep	Borax Lake, Houx	radiocarbon:1700:150BP-AD 200, 4720:240BP-2770BC; nr homestead
579	scatter petroglyphs	n bank Dry Cr	augered, poor	2	large		a site below may have eroded away, basketry materials
578	shallow midden	s bank Dry Cr, nr stream	tested, poor	2	medxshallow		basketry materials
609	petroglyph	n bank Dry Cr	--	1		Late Houx	10m from historic dump
581	scatter	s bank Dry Cr	tested, poor	1	small		
582	village	n bank confl Dry Cr and Cherry Cr	tested, medium	2	largexdeep	Borax Lake	housepits, winter village, headquarters for a division
607	petroglyph scatter	n bank Dry Cr	augered, poor	1	100m ²	Late Houx	
595	shallow midden	s bank Dry Cr	tested, poor	1	smallx shallow		historic materials
596	scatter	s bank Dry Cr	augered, poor	1	small		historic site
586	station	n bank Dr Cr nr Cherry Cr	augered, poor	1	medium	post-historic contact	housepit (1), worked bottle glass
608	hamlet	n 2nd terrace Dry Cr	tested, rich	1	medxshallow	Late Borax Lake	
597	hamlet	e of confl of Yorty and Brush Cr	tested, rich	1	medxdeep	Borax Lake	
592	scatter	e bank Dry Cr, nr confl w Yorty Cr	augered, poor	1	small		disturbed
541	station	w 2nd terrace, Dry Cr	augered, medium	1	small		housepit (1)

TABLE 1 (Cont.)

Site #	Type ¹	Location	Recovery ²	Soil-Vegetation ³	Size ⁴	Time ⁵	Other
<u>Yorty Creek Section</u>							
585	petroglyph	gravel bank in creek-bed	augered, no materials	2			
576	station	n bank Yorty Cr	tested, medium	2	smallxdeep	Houx	radiocarbon 675-140-AD 1325, 2300±160-350BC
588	station	s bank Yorty Cr nr confl w stream	augered, poor	3	small	historic, c.1850?	housepit (?)
577	shallow midden	w bank Yorty Cr	tested, medium	3/2	smallx shallow	"Yorty gravels," Early Borax Lake	
590	petroglyph	streambed Yorty Cr		2	3m ²		
584	hamlet	n bank Yorty Cr bisected by tributary	tested, medium	2	medxdeep	"Yorty gravels," Houx	
583	station	n bank Yorty Cr nr confl	tested, rich	2	smallx shallow	"Yorty grave's," Borax Lake, Late Houx	nr historic cabin
<u>Cherry Creek Section</u>							
552	scatter	e bank Cherry Cr	augered, poor	2			homestead nearby
587	surface	terrace, nr 2 seasonal cr	augered, poor no midden	3/2	small		housepits (2), historic site
604	shallow midden	e bank Cherry Cr, nr confl w Skunk Cr	augered, poor	3	smallx shallow		eroded away
589	housepit	e bank Cherry Cr	augered, poor no midden	3	smallx shallow		homestead evidence
603	shallow midden	w bank Cherry Cr	tested, medium	3	smallx shallow	Borax Lake	
601	shallow midden	w bank Cherry Cr	tested, poor	3/2	smallx shallow		
<u>Sites Outside WSCRS Area Proper</u>							
662	scatter	s bank Rancheria Cr	obsidian flakes	2	20x20m		
660	midden	n bank Rancheria Cr	flakes	1	15x10x.7m		Martin's homestead
393	petroglyph midden	se Little Strawberry Cr	--	2	--		
569	petroglyph	n bank Smith Cr	--	2	--		partly eroded
602	midden	e bank Cherry Cr	--	2	30x20m		possible housepit, historic site
606	campsite	n bank Dry Cr	--	1	10x5m	historic? prehistoric?	fire pits (2), partly eroded away
580	station	30m below top of Thompson Ridge	poor, no midden	1	--		housepits (2), 1100' elevation
563	midden	s bank Smith Cr	flakes	2	60x10x.8m		eroded

References: Baumhoff 1976, 1978, 1980; Baumhoff and Orlins 1979; Jackson 1973; MacDonald and Honeysett 1975; Orlins 1975; Parrish and Parrish 1980; Stewart 1979; U.S. Dept. of Agriculture 1972.

¹ Village: about 50 houses
Hamlet: 5-10 houses
Station: 1-2 houses
(Baumhoff 1978: Appendix 2:6)

² Rich: 199 flakes or more per 10 cm
Medium: 20-199 flakes per 10 cm
Poor: 10-20 flakes per 10 cm
(Baumhoff and Orlins 1979:200)

³ Environment (from Soil Survey and MacDonald and Honeysett 1975)
1 Mixed Evergreen-Oak Forest
2 Woodland-Grassland
3 Woodland-Chaparral
4 Chaparral

⁴ Small: 1-2 houses
Medium: 4-5 houses
Large: 20 or more
(Baumhoff and Orlins 1979:200)

Surface: --
Shallow: 20-80 cm
Deep: 1 meter plus
(Baumhoff and Orlins 1979:200)

⁵ Late Houx: 1200 A.D. to historic
Early Houx: 500 B.C. to 1200 A.D.
Late Borax Lake: 3000 B.C. to 500 B.C.
Early Borax Lake: 5000 B.C. to 3000 B.C.
Post Pattern: 6000 B.C. to 10,000 B.C.
(Baumhoff and Orlins 1979:3)

aid chronological placement of site components. In nearly all sites occupied during more than one recognizable period, obsidian was more common in the later deposits, while chert occurred more frequently in those of the early periods.

Debitage ratios were also used as evidence to support a number of other propositions. The first of these involved the importance of trade, as obsidian does not occur naturally in the project area. Baumhoff and Orlins (1979:188) suggested that there was little or no trade in the Early Borax Lake period, a rapid increase in the Late Borax Lake and Early Houx, followed by a decrease in volume during the Late Houx. High volumes of obsidian waste recovered from small habitation sites occupied during the period of heaviest trading were seen as indicators that these were the dwelling places of obsidian specialists. It was suggested that these craftsmen, along with ritual specialists, lived at small stations separated from the chief tribelet village. The importance of the specialists' sites declined with the lessening of trade in the Late Houx, and the chief tribelet village became the center of obsidian manufacture.

Territory and Population

Based on the presence of a stable number of site components from the earliest to the latest periods, Baumhoff and Orlins (1979:191) argued for stability of population and territory as far back as Early Borax Lake times. Baumhoff and Orlins also contended that the land in their project area had been the territory of two distinct tribelet groups. The Northern Section--the Dry Creek drainage north of Pritchett Peaks--comprised the core area of the Shakhowe, or Upper Dry Creek Pomo. The Southern Section--the Warm Springs drainage--comprised an area peripheral to the Mihilakawna, whose chief village was probably further south, perhaps at the mouth of Pena Creek in Dry Creek Valley. The Central Section, in which relatively few sites were identified, was conceived of as a buffer zone between the two tribelet territories.

The question of tribelet boundaries in this area is of major interest, as considerable confusion exists in the ethnographic literature regarding this point. From ethnographies, it is not possible to determine whether the Shakhowe were a separate tribelet, part of the Mihilakawna, or a west-

ern extension of the Cloverdale Pomo (see Chapter 3).

Based on the size of midden sites believed to have been occupied synchronically, Baumhoff and Orlins (1979:195) proposed that the population of the Shahkove was between 504 and 684.

Site Specialization

A wide range of site types was identified in the WSCRS area. Baumhoff and Orlins (1979:195-203) characterized the sites as follows:

Hunting Blinds - "Rock rings 2 to 3 meters in diameter located away from streams in places commanding actual or possible game trails."

Quarries - Chert outcroppings

Petroglyphs - Those found within the WSCRS area consist of "small pits or cupules with an occasional groove, pecked into the faces of boulders of various sizes." Found as isolated sites and in association with habitation sites.

Living Sites

Villages - Large (20 houses or more) and deep (1 meter plus); winter headquarters for tribelet

Hamlets - Medium (4 or 5 houses), deep (1 meter plus); satellite communities attached to chief village

Stations - Small (1 or 2 houses), deep (1 meter plus)

Shallow Middens - Small sites low in material remains; occupied for a short period of time by a small group for a special purpose, such as acorn gathering or deer hunting

Surface Sites - Same as shallow midden, but with surface remains only

Based on the changing frequency and distribution of material remains, as well as the changing configuration of site types, Baumhoff (1978: appendix 2) and Baumhoff and Orlins (1979:203-209) presented the following hypothesis regarding the "Evolution of Pomo Society": Sometime during the Early Borax Lake period, progenitors of the Upper Dry Creek Pomo settled in the area. They may have been preceded by Post Pattern peoples of a free-ranging, pre-tribelet organization, who utilized the area on occasion. Early Borax Lake peoples, in contrast, constituted a tribelet, with a large winter village and satellite hamlets. They remained within a fixed area and did not engage in trade. Trade, along with specialization in tool manufacturing and religious activities, began in the Late Borax Lake, reaching a fluorescence in the Early Houx. Pomo society at that time appears to have

been socially stratified, with traders, priests, and artisans living in small, separate communities segregated from low-status individuals, who lived in the chief village. This segregation and differentiation broke down in the Late Houx, when the obsidian industry and religious specialization--somewhat diminished in character--were relocated to the chief village. Baumhoff suggested that it was the introduction of the Kuksu cult which transformed native Pomo religion and social organization into its historic pattern.

Archaeological Sensitivity

Sensitivity Criteria

The present sensitivity study is based on the placement characteristics of 70 prehistoric archaeological sites recorded in the WSCRS area. The most important criteria extracted from this data pool involve the positioning of sites in relation to (a) water sources and (b) soil-vegetation zones delineated for the WSCRS by ecologists MacDonald and Honeysett (1975). Based on the suitability of certain classes of soils for the production of specific associations of natural vegetation, MacDonald and Honeysett divided the WSCRS project area into four soil-vegetation types. They are summarized as follows:

1. Mixed Evergreen and Oak Forest Soils

These soils are in the Hugo, Josephine, Sites, Comptche, Atwell, and Bonner series. They are important timber soils and support a mixture of Douglas fir, redwood, and hardwoods. The hardwoods include species of value to human populations for their acorns: the black oak (*Quercus kelloggii*) and the tan oak (*Lithocarpus densiflora*). Roosevelt elk would have favored such areas and may have been present (Baumhoff and Orlins 1979:1). Although some grassland has developed on these soils following fires and clearing, none of the soils are particularly suited to grasses. Baumhoff and Orlins (1979:1) rated this vegetation type as very important to the aboriginal inhabitants, but slightly less so than the woodland-grassland community.

2. Woodland-Grassland Soils

These soils are in the Laughlin, Yorkville, Montara, Sobrante, and

Suther series. The Laughlin and Suther series contain both large areas of open grassland and dense woodlands containing, among other hardwoods, important acorn producers: the Oregon oak (*Quercus garryana*) and the black oak. The remaining soil series in this type support mainly grasses, with only occasional small stands or lone examples of trees. Baumhoff and Orlins (1979:2) claimed that these soils sustained the most important nut production within the area and supplied an important feeding ground for deer. For these reasons, they rated it as the land most important economically to the area's aboriginal inhabitants.

3. Woodland-Chaparral Soils

These soils, which make up the Los Gatos Series, are associated with a vegetation cover consisting of 80% brush and hardwoods, with sparse grass. Small stands of redwoods occur in ravines. Shallow soils of this type support a diverse "high" chaparral mixture, while deeper soils give rise to the development of grass-woodlands. The most common oaks in the community--the coast live oak (*Quercus agrifolia*) and the interior live oak (*Quercus wislizenii*)--are poor acorn producers. For this reason, Baumhoff and Orlins (1979:2) suggested that the primary importance of this land from the standpoint of aboriginal economics was the production of deer feed; they classified it as probably less important than the types described previously.

4. Chaparral Soils

The Stonyford, Maymen, and Henneke series make up this type. These areas of dense chaparral are primarily comprised of shrubs, with some scrub oak (*Quercus dumosa*) and manzanita (*Arctostaphylos* spp.). Baumhoff and Orlins (1979:2) described this soil-vegetation type as probably the least important in the area. Only the margins of this type would have been of value, since important deer feed grows there.

Only those loci determined to have been habitation sites by Baumhoff (1976) and Baumhoff and Orlins (1979)--50 sites--were considered in the formulation of the criteria for the CHZ sensitivity study. Other site types identified in the WSCRS area are located in particular topographic or geologic situations that are not predictable by the methods used in the present study--a quarry area, for example, which takes advantage of an isolated mineral outcrop. Similarly, the influence of local topography on occupation site location was intentionally omitted as a usable criterion for determin-

ing macro-level settlement rules. Again, the omission results from the lack of specialized data, in this case, large-scale stereoscopic aerial photographs of the CHZ areas. Such photographs would be essential to pinpoint the often small and obscure terraces on which habitation sites were situated in topographically comparable sections of the WSCRS area. These data have been used successfully in the area. The Corps of Engineers' geographer considers that the use of aerial photographs was a significant contributing factor to the predictive reliability of his archaeological sensitivity maps for the Dry Creek and other Sonoma County drainages (Forsman, personal communication 1981). Apart from photographic data, Forsman used similar criteria to those proposed in this report for determining areas' sensitivity.

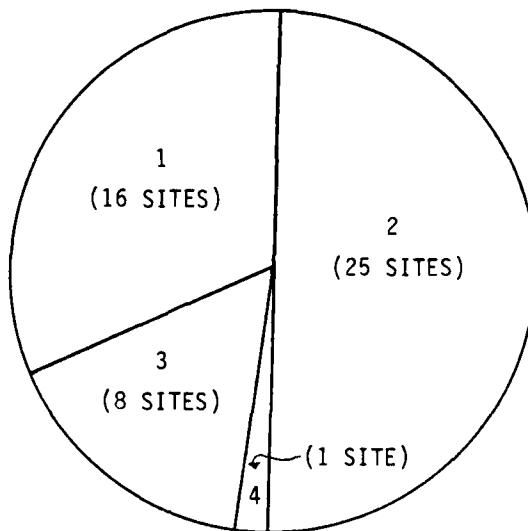
WSCRS Site Distribution

In the WSCRS site distribution pattern, proximity to water sources is the most commonly occurring environmental association. Most of the sites identified in the area are adjacent to permanent watercourses; the remainder, only about 17%, are situated on seasonally active drainages (half of the latter group are on Yorty Creek). In addition, WSCRS sites commonly occur at the confluences of intermittent and year-round streams. This pattern was not quantified for the present analysis, however, because of the problems involved in differentiating between seasonal and permanent streams.

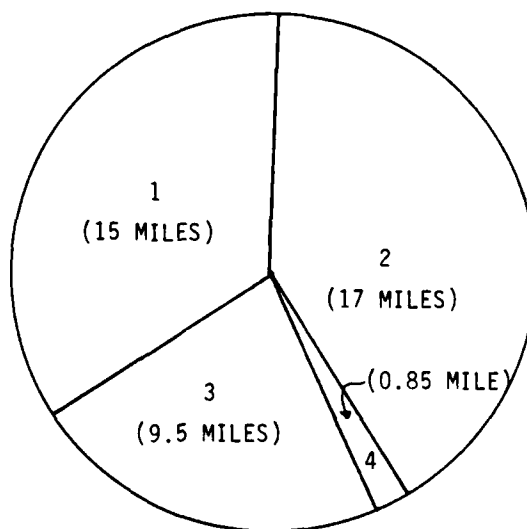
The occurrence of WSCRS sites along watercourses varies in relation to adjacent soil-vegetation zones. Figure 1a shows the proportion of sites occurring in each of the soil-vegetation zones. When this pattern is compared with figure 2a, which presents the composition of WSCRS lands in terms of the same soil-vegetation zones, it appears that a slightly larger number of habitation sites was found in the woodland-grassland zone in relation to the area of land which this zone occupies. Table 2 delineates site type in relation to soil-vegetation type. These data indicate that most habitation loci are adjacent to riparian/woodland-grassland ecotones; such areas are, therefore, particularly sensitive zones here, as elsewhere in the county (Praetzellis and Praetzellis 1977:45-53). Figure 1b was constructed to determine whether the woodland-grassland zone in the WSCRS area serendipitously contains a longer stretch of permanent stream frontage, since such a cooccurrence would contribute to the pattern exposed by

FIGURE 1
WSCRS AREA ANALYSIS

a. RELATIVE PROPORTIONS OF LIVING SITES BY SOIL-VEGETATION ZONES



b. RELATIVE PROPORTIONS OF PERMANENT STREAM FRONTAGE BY SOIL-VEGETATION ZONES

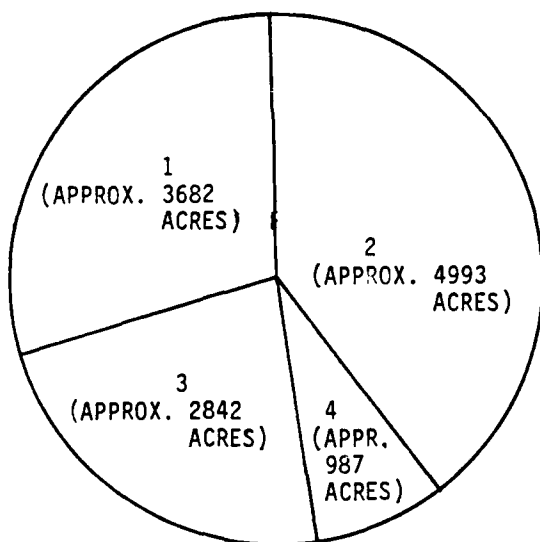


KEY: 1 = MIXED EVERGREEN 3 = WOODLAND/CHAPARRAL
2 = WOODLAND/GRASSLAND 4 = CHAPARRAL

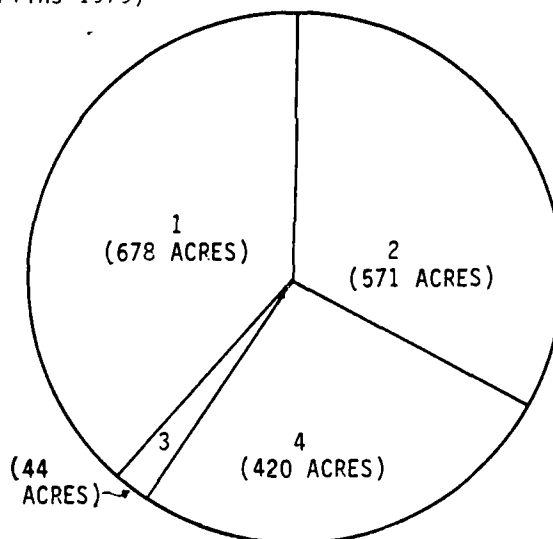
FIGURE 2

SOIL-VEGETATION ZONES: WSCRS AND CHZs

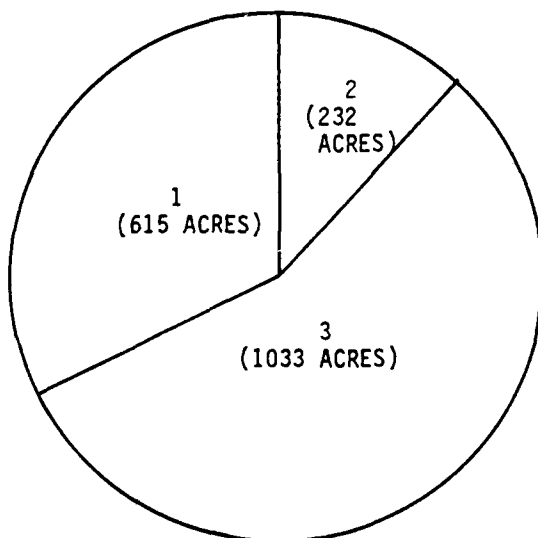
a. PART OF WSCRS AREA (Abstracted from Baumhoff and Orlins 1979)



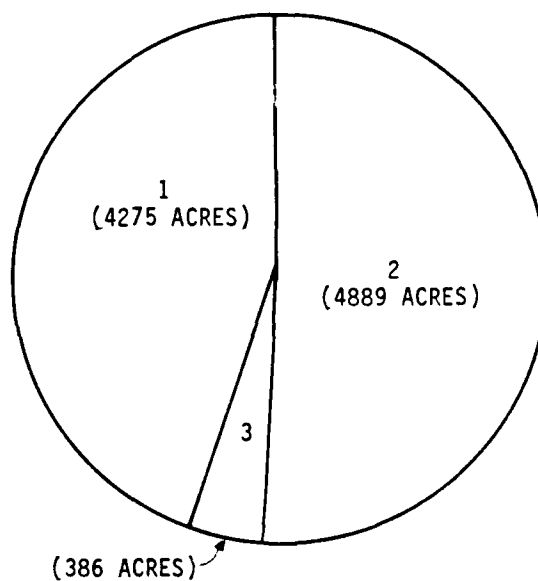
b. RANCHERIA CREEK



c. DRY CREEK



d. UPPER DRY CREEK



KEY: 1 = MIXED EVERGREEN
2 = WOODLAND/GRASSLAND
3 = WOODLAND/CHAPARRAL
4 = CHAPARRAL

TABLE 2

WSCRS SITE TYPES BY SOIL-VEGETATION ZONES

	1 Mixed Evergreen Oak Forest	2 Woodland Grassland	3 Woodland Chaparral	4 Chaparral	Totals
Petroglyph	3	4			7
Hunting Blind	1	3		1	5
Quarry		1			1
Living Sites					
Surface	3	3		1	7
Shallow Midden	3	11	5		19
Station	5	4	3		12
Hamlet	4	6			10
Village	1	1			2
Type Unknown	1	6			7
Total (Living Sites)	21 (16)	39 (25)	8 (8)	2 (1)	79 (50)

figure 1a. This was found not to be the case. The proportion of water-course frontage within each soil-vegetation zone roughly corresponds to that of the zone's representation in the WSCRS area (figure 2a).

To order the soil-vegetation zone's sensitivity, the number of sites within each zone can be viewed in relation to its acreage. The results are inconclusive, however, as similar proportions of stream frontage and living sites in relation to acreage are represented in each zone, and no significant pattern of site distribution is indicated. The woodland-grassland zone does show a greater proportion (approximately 10% higher) of sites relative to acreage and stream frontage. The proportions of sites in the remaining zones fall within the expected order but give only minimal support to Baumhoff and Orlins' (1979) contention that, in order of decreasing importance as prehistoric habitation areas, the zones rank as follows: 1) woodland-grassland, 2) mixed evergreen-oak forest, 3) woodland-chaparral, and 4) chaparral.

Archaeological Sensitivity of the Critical Habitat Zones

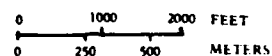
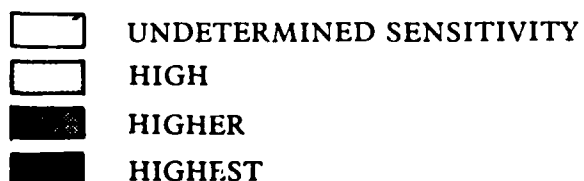
As stated above, the determination of sensitivity presented here (maps 8, 9, and 10) is based principally on the interrelationship between the area's soil-vegetation zones and the presence of water. These characteristics were determined by reference to the Soil Survey of Sonoma County (U.S. Department of Agriculture 1972) and current 7.5' USGS topographic quadrangles of the area, respectively. This method has been used locally with good results by Praetzellis and Praetzellis (1977) and Forsman (personal communication 1981). It should be noted that the maps only show areas of high archaeological sensitivity; prehistoric sites may well be present in unmarked areas within each CHZ.

Rancheria Creek Critical Habitat Zone

The Rancheria Creek CHZ (map 8) contains more than 2.5 miles of year-round stream frontage, as well as a junction of two such creeks. In the southwestern portion of this zone, a series of springs which contribute to Rancheria Creek is surrounded by soils impermeable by water, providing the potential for vernal pools; the USGS topographic sheet, in fact, shows a small marsh at this spot. These riparian zones are found in association



RANCHERIA CREEK CRITICAL HABITAT ZONE
PREHISTORIC ARCHAEOLOGICAL SENSITIVITY



with areas of extensive woodland-grassland and mixed evergreen-oak forest (figure 2b). The large expanse of chaparral, which is centrally located in the CHZ, would have provided important game browse at its borders.

The amount of associated riparian and woodland-grassland zones would have made parts of the Rancheria CHZ likely spots for permanent habitation. Plant and animal resources otherwise rare in this rugged part of the county may have existed here because of the well-established marsh; in particular, waterfowl may have frequented the area, increasing its attractiveness to native groups. The area adjacent to the confluence of the two year-round watercourses at the woodland-grassland/mixed evergreen-oak forest ecotone is particularly sensitive with regard to habitation sites. The chaparral/woodland-grassland and chaparral/mixed evergreen-oak forest margins, particularly those overlooking Rancheria Creek, may contain hunting-associated sites. Relative to the area of land involved, the Rancheria Creek CHZ has the potential for containing the greatest number and variety of archaeological sites of the three CHZ areas.

Dry Creek Candidate/Critical Habitat Zone

The Dry Creek Zone (map 9) contains, in general, the most rugged terrain of the three CHZs. Although several seasonally active creeks traverse the region, there appear to be no permanent watercourses. The predominant soil-vegetation type is the relatively low-sensitivity woodland-chaparral. Soils favorable to the important woodland-grassland community are rare (figure 2c).

The foregoing characteristics suggest that much of this CHZ was unsuitable for year-round habitation, although its northeastern portion may have been so used because of its gentler terrain and proximity to Alexander Valley. Seasonal use, however, is likely to have occurred for hunting game. Archaeological evidence of this activity may be expected associated with ecotones, especially adjacent to drainages. The junction of three intermittent creeks located in the southeastern section of the study area may have attracted game in season. Archaeological sites are likely to be found in situations allowing good overview of nearby game movement.

Upper Dry Creek Candidate Habitat Zone

The Upper Dry Creek CHZ (map 10) contains nearly 8 miles of permanent streams, as well as numerous named and unnamed seasonal creeks. As the study area contains the sources of these waterways, it is probable that stream flow is much reduced during the summer season. Figure 2d shows that the most common soil-vegetation type is woodland-grassland. While this type covers a proportionally greater area in the Upper Dry Creek CHZ than in the WSCRS project area, the CHZ is, overall, more precipitous than the downstream Dry Creek drainage.

The presence of a large area of archaeologically sensitive woodland-grassland associated with a long riparian ribbon suggests that the zone could have been used for year-round occupation. The north side of Galloway Creek, although generally rather steep, probably contains low and secondary terraces similar to the favored habitation spots on Dry Creek above its confluence with Cherry Creek. If the WSCRS Dry Creek pattern continues in this zone, habitation sites may be expected at the confluences of seasonal and permanent creeks and adjacent to deep pools. The possibility of seasonal water shortage elsewhere in the zone may have influenced the establishment of such sites toward the northeastern portion of the study area, near the junction of Galloway and Dry creeks. Other characteristics which may have made this confluence attractive for settlement include the nearby hot springs, the historically documented availability of steelhead trout (field data 1981; Baldwin 1941:61), and the proximity of river bottomland.

Field Observation





Field checks were attempted for those highly sensitive areas which could be reached by road, including portions of Hot Springs Road (Upper Dry Creek CHZ), Kelly Road (Dry Creek CHZ) and Rockpile Road (Dry Creek, Rancheria and Upper Dry Creek CHZs). Due to access problems, however, very little ground was actually surveyed, and no archaeological remains were encountered. It was noted that landforms potentially suitable for pre-historic occupation corresponded with those areas designated as highly sensitive on the map. These areas were usually found to be in association with historic features.

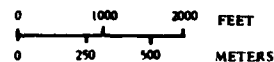


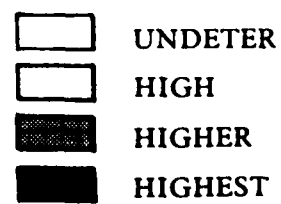
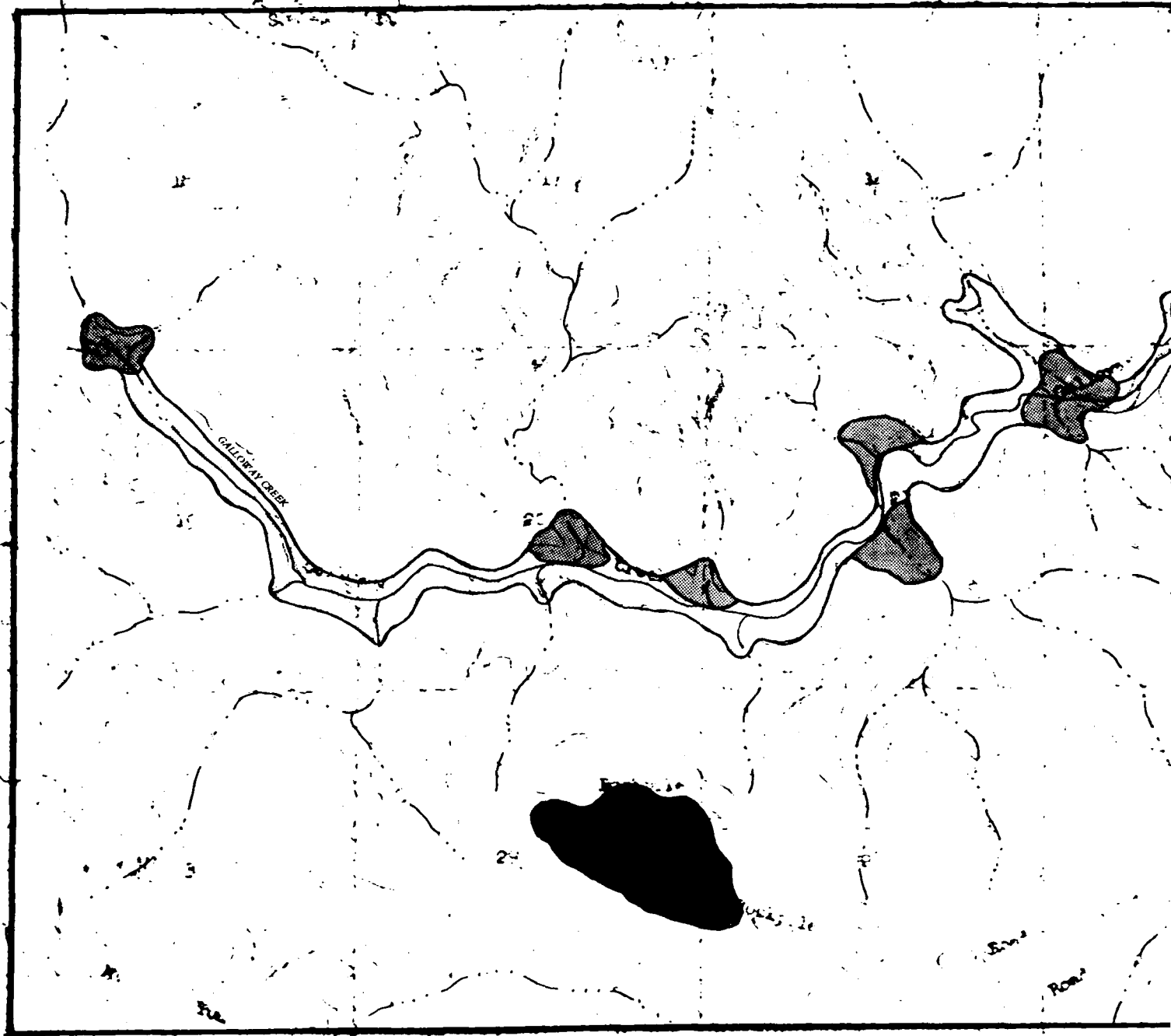
MAP 9

DRY CREEK
CANDIDATE/CRITICAL
HABITAT ZONE

PREHISTORIC
ARCHAEOLOGICAL
SENSITIVITY

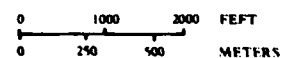
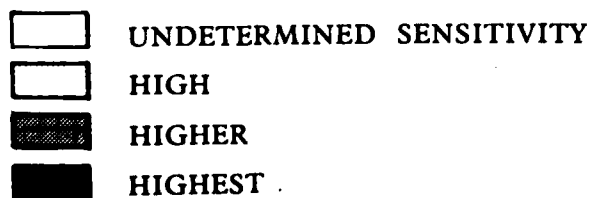
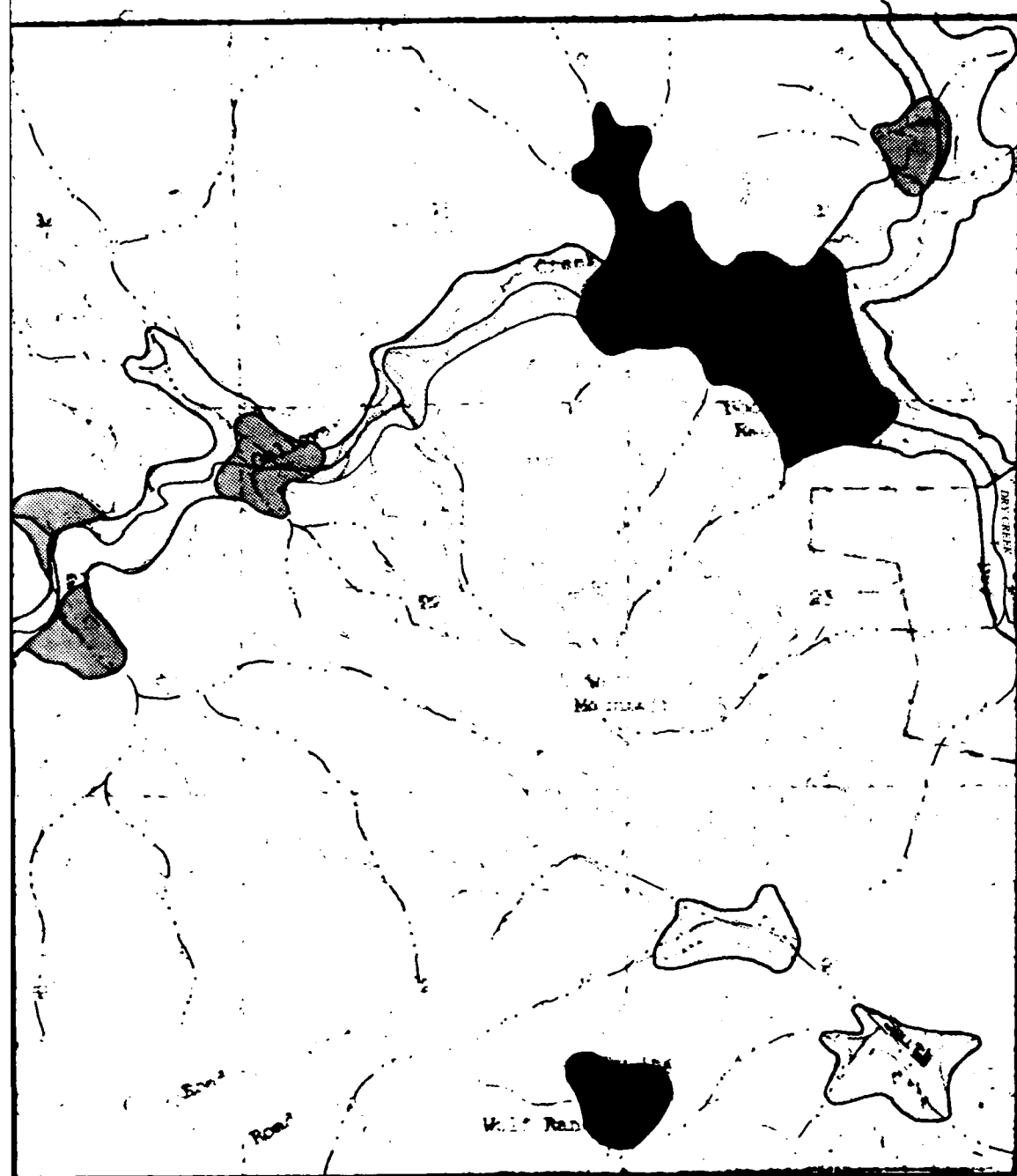
-  UNDETERMINED SENSITIVITY
-  HIGH
-  HIGHER
-  HIGHEST





UPPER DRY CREEK
CANDIDATE HABITAT
ZONE

PREHISTORIC
ARCHAEOLOGICAL
SENSITIVITY



Summary and Conclusions

No archaeological survey has been undertaken on any of the privately owned lands within the CHZs. Only one site has been recorded within any of the three parcels presently under study. Based on the results of the WSCRS archaeological survey and testing program and a reconstruction of the soil-vegetation types, prehistoric archaeological sensitivity maps were prepared for each of the candidate/critical habitat zones. These maps suggest the potential for habitation sites similar to those found within the WSCRS area; areas within each CHZ are therefore designated as highly sensitive. It is likely that hunting blinds and camps, petroglyphs, and quarry sites also exist in the study areas, but the location of these types of sites is difficult, if not impossible, to predict from the available data set. Such sites are often found on ridges (which make up much of the present study areas): the WSCRS area, however, is composed principally of drainages and the immediately adjacent land, and comparable data do not exist. Fieldwork geared to the examination of microenvironments or the surface occurrence of certain geological phenomena is perhaps the only means of locating these types of sites.

Part of the scientific significance of prehistoric sites in the CHZs would be their applicability to the research problems identified by Baumhoff (1976) and Baumhoff and Orlins (1979) for the WSCRS. In particular, it is believed that archaeological data from the Upper Dry Creek CHZ might be used to reconstruct tribelet boundaries and perhaps to identify another longstanding territorial buffer zone, such as Baumhoff identified on Dry Creek near Pritchett Peaks. Also of interest in this CHZ would be further evidence to test Baumhoff's (1978) hypothesis regarding site specialization and population shifts through time. An ethnographic tribelet boundary also runs through the Dry Creek CHZ, while another just touches the northwestern corner of the Rancheria Creek zone (see map 11, chapter 3); all zones, therefore, have the potential for yielding information on territorial boundaries. In addition to their potential for providing data to address specific questions of native culture history, archaeological survey in the CHZs--especially in the Dry Creek zone--would supply information about the prehistoric use of what has been regarded as unattractive areas for occupation, thereby supplementing the pattern uncovered by Baumhoff (1976) and Baumhoff and Orlins (1979) for more favorable areas.

CHAPTER 3

NATIVE AMERICAN LAND USE

Introduction

Methods

The study of Native American use of land in the candidate/critical habitat zones (CHZs) included determinations of tribelet territorial boundaries and inferred precontact land-management practices, as well as the collection of ethnographic data on the use of the specific zones during the 20th century. The research strategy consisted of two phases: (1) prefield research, and (2) ethnographic field and nonfield interviewing.

The prefield research phase entailed a comprehensive search and review of the pertinent literature in order to identify ethnographic, ethnohistorical, archaeological, and historical data which might reveal the presence of Native American sites within the study area. Based on maps and published descriptions contained in the ethnographic literature, the territorial boundaries of the native groups which formerly occupied and controlled the study area were plotted onto the appropriate USGS topographic maps. As a result of this research, it was determined that at least three, and possibly four or five, different Indian groups, speaking two languages (Southern Pomo and Kashaya Pomo), controlled the study area from precontact times into the historic period. All identified sites, including archaeological sites, were also mapped.

Fieldwork with Native American consultants began with a review of the scope and purpose of the study; study areas were described and located on topographic maps. These procedures served as a preliminary orientation for consultants. While some interviews took place at consultants' homes, several trips were made to the candidate/critical habitat zones (CHZs) with consultants. No on-the-ground survey was made.

During the fieldwork, interviewers were equipped with pertinent anthropological and other literature, as well as archaeological site records, ethnographic site reports, topographic and other maps, photographic equipment, and binoculars.

In the field, close attention was given to the composition of existing plant communities. The presence of indicator species was noted in order to provide a basis for understanding the earlier vegetative conditions of the study areas. Note was made of very old trees and other plants and the particular growth habits of trees as indicators of past plant communities. Published works were consulted for descriptions of earlier vegetative conditions, and adjacent areas of similar terrain, slope, and other factors were also examined. Through these methods, the earlier vegetative conditions of the area were generally identified.

Recent experiences on similar studies have established the usefulness of environmental reconstruction as a significant aid in identifying and analyzing the cultural resources and land uses of a given area. Experience has also proved that Indian consultants can better predict the location of possible sites and potential uses of an area when this procedure is followed. Particular attention was also given to the location and identification of plants known to have ethnobotanical significance (e.g., medicinal, ceremonial, technological, and subsistence uses) to the Indians of the region.

Interviews were directed so as to elicit data concerning the pre-historic, historic, and contemporary Indian use of the Rancheria Creek, Dry Creek, and Upper Dry Creek CHZs and to identify ethnographic and other culturally sensitive areas. In particular, consultants were interviewed as to the presence, location and use of the following:

- (1) Native American territorial and other boundaries in the vicinity of the CHZs
- (2) Aboriginal trails in the area, and the nature of the inter- and intratribelet trade and exchange networks
- (3) Procurement and processing sites for collecting plant resources (used for medicinal, ceremonial, technological, and culinary purposes) and minerals, as well as the existence of aboriginal mines and quarries
- (4) Hunting tracts
- (5) Medicinal hot spring sites and other sacred, spiritual, ceremonial, and "doctoring" sites
- (6) Settlement and other habitation sites (e.g., villages, summer campsites)

- (7) Native American cemetery sites
- (8) Sites, other than the above, significant to the preservation and perpetuation of Native American cultural identity

Jennie L. Goodrich, Staff Ethnologist for the Ethnographic Laboratory, Department of Anthropology, Sonoma State University, directed the fieldwork with Native American consultants. Kathleen Smith, Native American coordinator for the Warm Springs Cultural Resources Study, also participated in the identification and interviewing of Native American consultants.

It is the policy among the local Indian communities that jurisdiction over Indian cultural resources is the prerogative of that community which controlled the area and/or resources in question in traditional times. Further, those persons utilized as consultants shall first be persons descended from the concerned group and shall be recognized by their respective communities as scholars of their own cultural traditions. In the event no such person is available, persons representing tribal governments and/or organizations who represent the area shall be consulted. This policy was followed. The study was fortunate to gain the participation of knowledgeable consultants with direct ancestral ties to the study areas. Consultants included the following:

Elsie Allen (D.D.)
Makahmo Pomo; tribal scholar, Southern Pomo language consultant; teacher, lecturer, author, and basketweaver of national renown

Clarence Cordova
Mihilakawna Pomo; cultural consultant

Alfred Elgin, Sr.
Mihilakawna Pomo; cultural consultant

Rose Elgin
Mihilakawna Pomo; cultural consultant

Olive Fulwider
Mihilakawna Pomo; cultural consultant

John Santana
Wishachamay Pomo; cultural consultant

Lucy Smith
Mihilakawna Pomo; tribal scholar; basketweaver

Laura Somersal

Mihilakawna Pomo-Geyserville Wappo; language consultant,
tribal scholar, basketweaver of national renown

Addresses of Native American consultants are provided in Appendix A;
a genealogy for each consultant is presented in Appendix B.

Study Limitations

Data concerning the Kashaya Pomo utilization of the study area are not available at this time. The Kashaya Tribal Council is presently evaluating its role in cultural resource management and other environmental and cultural studies. The staff of the ethnographic component met with the council on 12 February 1981. At that time, the scope and purpose of the study was discussed in detail and consultant recommendations were made. The council felt it was appropriate to contact recommended persons and secure their approval to serve as consultants, whereupon it would notify the study as to what action was appropriate. To date, the study has not been apprised of the council's findings. It should be noted that the council's actions are in no way unsupportive of the study; it has the council's approval. Kashaya data, if available, will be submitted as a separate supplement at a later date.

While hunting has been an important Native American activity in the CHZs, current hunting data were difficult to obtain. Several consultants expressed concern about the situation, which one described as follows:

If we tell you we hunt there and how many hunt, they'd have wardens out all over, and the hunting would be over. If we say we don't hunt and they go ahead and buy the land for the birds, there will be no hunting....You see the problem we have?

Although the study conducted interviews with knowledgeable consultants descended from these groups who formerly controlled the study areas, the data, especially as it concerns hunting, was limited by this procedure. It can be safely assumed that Indians from other groups in the region have also used and currently use the areas as well. Should further study be necessary, it is recommended that notices be sent out informing groups and individuals of the pertinent questions and an informal "hearing" be conducted on those resources that persons from other than the former controlling groups have used or continue to use.

Territories, Tribes, and Boundaries in the Study Area

Lands within the candidate/critical habitat zones were occupied by at least three, and possibly four or five, different Indian groups from precontact times into the historic period (map 11). It is generally agreed that, at the time of contact, the Dry Creek drainage was occupied by the Mihilakawna (Dry Creek Pomo, 'west creek people'). The territory which includes the drainage of Rockpile Creek, Buckeye Creek, and the upper reaches of the Middle Fork of the Gualala River was occupied by the Wishachamay (includes Hiwalhmu and Yotiya, or Rockpile Pomo), or 'ridge people' (see McLendon and Oswalt 1978). Both groups are Southern Pomo-language speaking peoples.

The boundary between these two groups was formed by the summit of the ridge which separates the Dry Creek and Gualala River drainages, just touching the northwestern corner of the Rancheria Creek CHZ and passing across the southern portion of the Upper Dry Creek Zone. In Upper Dry Creek, the portion of the zone north of the ridge would have been Mihilakawna; the southern portion, Wishachamay. The Rancheria Creek CHZ falls just within Mihilakawna territory.

The eastern boundary of Mihilakawna territory was formed by the summit of the low ridge separating the drainage of Dry Creek from the Russian River. The Makahmo (Cloverdale Pomo) occupied that portion of the region adjacent to the study area east of the summit. The Dry Creek CHZ is bisected by this ridge, the territory to the west being Mihilakawna, and to the east, Makahmo.

Prior to or around the time of contact, Dry Creek may have been occupied by two separate groups: the Shahkowe in upper Dry Creek, and the Mihilakawna in lower Dry Creek. The boundary between the two groups and the time of occupation has never been accurately determined. Archaeological findings tend to support the existence of two separate tribelets (see Baumhoff 1976:213). Some ethnographers have placed the boundary at the divide between Warm Springs Creek and Pena Creek, others at Warm Springs Creek (see Kroeber 1925:plate 36; Merriam: field notes; Merriam and Talbot 1974:20). Dry Creek Pomo consultants to this study, however, had learned from their "old people" that all of Dry Creek was one group speaking the

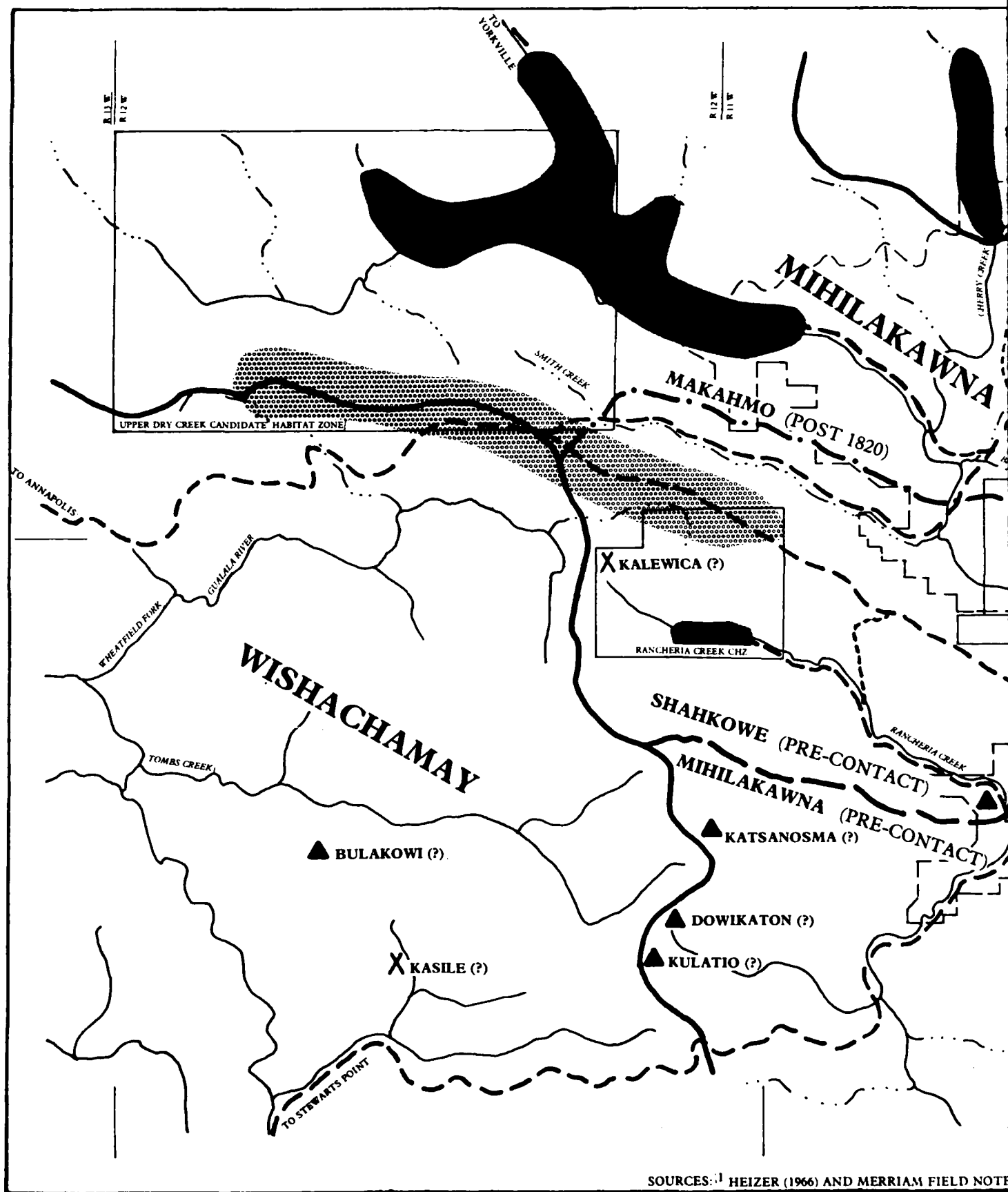
same language prior to the historic period. Controversy over the existence of two separate Dry Creek Pomo groups may stem from very early contact disruptions in population and settlement which forced Dry Creek groups to consolidate. If upper Dry Creek is considered a separate precontact tribe, then those portions of the CHZs within the Dry Creek drainage would have been Shahkove.

During the historic period, the Makahmo increased their use of upper Dry Creek and may have occupied settlements there. Raids by the Spanish in the 1820s and 1830s, which destroyed many of their homes along the Russian River, forced the Makahmo to seek refuge in isolated areas. One such "hide-out" was located west of Cloverdale behind Red Mountain on the Cherry Creek drainage. It is probable that Stewart's (1943) boundary, which appears to follow Pritchett Peaks and Thompson Ridge, represents this period. Historic use in the Upper Dry Creek and Dry Creek CHZs north of these points was principally by the Makahmo.

A fifth group with ties to the study area is the Kashaya Pomo. Although control of lands within the study area is not recorded in the ethnographic literature, present-day knowledge of the history and use of Warm Springs Creek and the headwaters of the Middle Fork of the Gualala River by the Kashaya points to possible precontact occupation of these lands. Definite use by Kashaya of this area during the historic period is well documented (see Parrish and Parrish 1980). Thus, the southern portion of the Upper Dry Creek CHZ and all of the Rancheria Creek CHZ have been used by the Kashaya at different times.

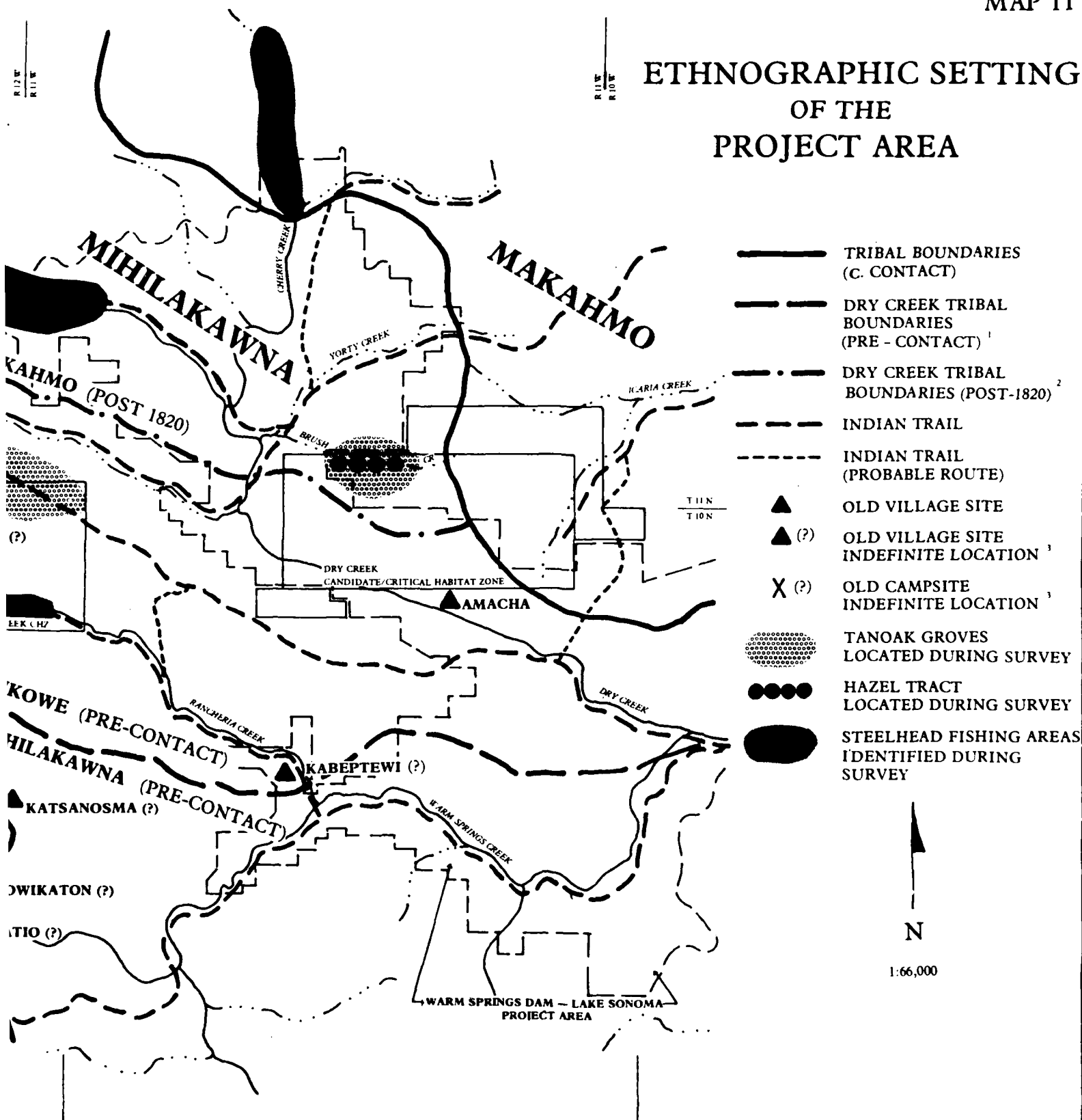
Land-Management Practices

Little is known of the techniques and strategies that the Pomoan groups who formerly controlled the study areas employed to manage land-based resources (e.g., plants, animals, birds, etc.). The data that are available are principally concerned with the Mihilakawna and the Makahmo Pomo (see Peri and Patterson 1979; Peri, Patterson, and McMurray 1981; Theodoratus et al. 1975). Although land-management techniques and strategies surely varied from group to group according to their varying environments, some management practices were undoubtedly common to all.



SOURCES: HEIZER (1966) AND MERRIAM FIELD NOTE

ETHNOGRAPHIC SETTING OF THE PROJECT AREA



¹ HEIZER (1966) AND MERRIAM FIELD NOTES; ² STEWART (1943); ³ BARRET (1908)

Plant Management

A variety of plant-management techniques was employed which improved and enhanced the floral environment. Although the specific management techniques varied according to the type of plant, the desired aim was the same: to obtain a supply adequate to meet needs while insuring the resources' continued viability. This goal was accomplished by employing collection strategies that were derived from an intimate understanding of the plants and their sexual and vegetative reproduction requirements. These resource-management techniques included pruning, cultivation, weeding and clearing, selective harvesting, and controlled burning. The implementation of these techniques was extensively regulated by social sanctions and religious taboos.

Pruning

Pruning was a deliberate management technique and an indirect result of harvesting or collecting methods. Pruning techniques were principally applied to trees and shrubs from which food and technologically important products were collected.

Because acorns were the staple vegetal food, the maintenance of these trees was essential. Acorn crops were harvested by knocking the nuts from the limbs with poles. During this process, some branch tips, leaves, and brittle and dead twigs were removed, and dead and diseased limbs were broken off. Pruning stimulated the growth of new branchlets and foliage the following year and increased the surface area of the canopy and the resultant fruit production.

Various shrubs were also pruned during harvest. Plants such as elderberry were harvested by breaking off the ends of the fruit-bearing branchlets, expanding the surface-producing area of the plant along the remaining stems, and generally improving its health and productivity.

Pruning also results from the collection of basketry materials, such as willow, dogwood, and hazel switches. The best switches suitable for weaving are long, straight, and slender, with no side branches, and with buds that are widely spaced; pruning encourages this development. Tangled, diseased and dead wood was also removed from the plant at the time of pruning, and overly thick or branched stems were cut out.

Cultivation

When certain root crops are harvested, the surrounding soil is indirectly cultivated. The major categories of root crops include edible corms, bulbs and tubers, and stolon or rhizome crops such as basket sedge. The results of such cultivation are increased aeration, water condensation, the stimulation of new root growth, and increased plant vigor. While cultivation loosens the soil, at the same time it mixes the surface nutrients into the ground; it improves the drainage during winter months, and allows better absorption of moisture during the growing season. Summer cultivation interrupts the capillary action of water to the soil surface, allowing water to remain in deeper, cooler soil layers where roots thrive. Loose soil at the surface also insulates the roots because of its air content. When the roots of root crops are not impeded by compacted soil, they increase in size and quality. The removal of mature or older roots in a tract also stimulates the growth of new roots, increasing the tract's size.

Corms, bulbs, and tubers--"Indian potatoes"--constituted a significant addition to the diet between mid-spring and early summer. Indian potatoes reproduce vegetatively by the formation of tiny bulblets attached to the parent plant. These bulblets remain dormant and do not grow large until older bulbs are removed or the bulblets are severed from the parent. Wild potatoes, often growing up to 1-1/2 inches long, were unearthed with digging sticks. This cultivation and aeration of the soil allowed the potatoes to attain a greater size, "become sweeter," and resulted in an expanded plant bed.

The method of unearthing or cultivating plants with rhizomes and stolons, such as basket sedge, similarly affects the quality and quantity of the yield (see Peri and Patterson 1976 for an extensive discussion of sedge cultivation). Sedge beds which have been cultivated over many years are characteristically extensive. The method of collection involves removal of rhizomes, which are anchored in the soil by fine primary rootlets, from the parent sedge plant. Loosening of the soil allows new rhizomes to grow quite long. Two and three-year-old rhizomes send up leafy shoots, which grow into new plants that increase the size of the bed. Sedge plants accidentally unearthed during cultivation are carefully replaced to

PLATE 3



Basketweavers Laura Somersall, Kathy Somersall, and Salome Alcantra collecting sedge near Dry Creek.

insure the continued growth of parent stock. Sedge beds which are left uncultivated eventually become a tangled mass of short, dry, brown roots. Additionally, the soil becomes very compact, and grasses and other plants intrude the unused beds.

Collecting areas are kept "clean" by weeding and removing debris. Weeding is especially important in maintaining tracts of plants, such as wild potatoes, basket sedge roots, and various medicinal herbs. The elimination of unwanted plants interrupts the natural process of plant succession and insures the continued presence of a particular plant by reducing competition for nutrients and moisture. Collecting areas are also raked to clear away dead branches, rocks, and excessive leaf litter from around the plants in order to reduce the potential of the plants' being crowded out.

Selective Harvesting

During harvesting, special care was given to taking from only the healthiest and most productive plants, which resulted in the perpetuation of the best plant sites. Large tracts of ethnobotanically important plants have been shown to be more a result of native harvesting techniques than the action of natural processes (Peri and Patterson 1976, 1979).

Burning

Fire was also employed to a limited extent as a resource-management tool. The use of fire prevents accumulation of debris, discourages the development of dense understory vegetation, and encourages the establishment and spread of grassy clearings. Small-scale fires eliminate the build-up of fuels in wooded areas, thus preventing the occurrence of destructive large-scale conflagrations. Burning also results in well-spaced trees and shrubs, assuring each plant an optimum supply of sunlight, water, and nutrients. Diseased and extraneous vegetation is eliminated by fire, which in turn reduces competition with healthy plants for nutrition and moisture. Additionally, burning releases essential nutrients into the soil, making them available for plants and, through plants, to animals and birds.

Faunal Management

The strategies and practices of managing fish and wildlife by Indians of the study area are little known. Undoubtedly, the religious sanctions (e.g., menstrual taboos) which prohibited hunting, fishing, and fowling had an indirect effect on these resources by limiting the number of days per year available for taking fish and other wildlife.

In deer hunting, there appears to have been no general preference for either males or females, adults, yearlings, or fawns. That is, deer were taken randomly. The effects of such a practice more than likely resulted in a deer population with a well-balanced number of males, females, and offspring. Additionally, less vigorous, less healthy deer were likely to have been removed from the breeding population due to a hunting pattern of random kills. Further data on other mammal, bird, and fish species are lacking.

Rancheria Creek Critical Habitat Zone

Introduction

The Rancheria Creek Critical Habitat Zone is situated just within the territory of the Mihilakawna. The boundary between the Mihilakawna and their western neighbors, the Wishachamay, passes along the ridge separating the Dry Creek and the Gualala River drainages, just touching the northwest corner of the zone. Precontact and historic use of the area by Kashaya Pomo has also been inferred (see Parrish and Parrish 1980). One "old" Wishachamay "campsite" recorded by Barrett (1908:227) and an historical Dry Creek Pomo campsite may be present in this zone. The study area is transected by at least two old trails. Dry Creek and Kashaya Pomo have used this area to procure fish, game, and plant resources.

Habitation Sites

Barrett (1908) recorded seven "old village sites" and three "camp-sites" within an approximate 5-mile radius of the Rancheria Creek CHZ. He assigned four of these village sites and one campsite to the "Russian River Division" of the Southern Pomo, which would have placed them in the control

of the Mihilakawna. One village, Kabeptewi ('rock, big place'), was located along Rancheria Creek about 2 miles from the zone's southeastern boundary, while the other three--Katsanosma ('grass-ashes,' or 'dust-sleep'), Dowikaton ('coyote-spring,' or 'water-under') and Kulatio (a kind of plant)-- were located on the ridge separating Warm Springs from the Middle Fork of the Gualala River, between 1-1/2 to 2-1/2 miles south of the zone. The campsite, Kawatcanno, was located on the same ridge, at the point where Stewart's Point Road (also an old Indian trail) crosses the summit (Barrett 1908:224-227).

Barrett assigned the remaining five of the aforementioned sites to the "Gualala River Division" of the Southern Pomo, analogous to the Wishachamay. The villages of Bulakowi ('Indian potatoes, long-place'), Duwiditem ('coyote, to go on top of'), and Hiwalhmu ('two streams flow together') were located from 3 to 5 miles southwest of the Rancheria CHZ, along the drainages of Wolf Creek and the north fork of the Middle Fork Gualala River. One of these campsites, Kasile ('redwood-place'), was located at the head of Wolf Creek near its north branch, about 3 miles southwest of the zone. The second, Kalewica ('tree-ridge'), was located "on the ridge separating the headwaters of the north fork of the Middle Fork of the Gualala River from those of Ranchero Creek" (Barrett 1908: 227). There is a strong possibility that this campsite was within the zone's boundaries, and that the name Kalewica refers to the area's abundance of tan oaks, valued for their acorns. An additional historical camping area, last used around 1910, was mentioned by a Dry Creek Pomo consultant to this study. Her family had camped somewhere on the Soule Ranch while collecting tan oak acorns.

Trails

Rockpile Road, which passes through the northeastern corner of the Rancheria Creek CHZ, was an important trail that provided access from Dry Creek Valley to the Kelly Road trail, which continued to the coast through Annapolis. A second intertribe trail up Rancheria Creek provided access to local resource-collecting and hunting sites used by residents of Warm Springs Creek and Hiwalhmu in precontact times and later by Dry Creek Pomo, and possibly Kashaya, to gather tan oak acorns and other resources.

Kashaya and Wishachamay probably used a trail through here en route to agricultural work in Russian River Valley. McLendon and Oswalt (1978:280) reported that the two groups met at the village of Hiwalhmu prior to this journey. A Kashaya elder (Essie Parrish, personal communication 1976) stated that they came down a trail along Rancheria Creek, camping at its confluence with Warm Springs Creek before continuing to the valley for work.

Hunting

The last time Dry Creek consultants remembered hunting in the vicinity of the Rancheria Creek CHZ was in 1910, when one family made a trip there to collect tan oak acorns. The men, who hiked up to the ridge to gather acorns from the large trees that grow there, always took along their guns to do some hunting as well. In particular, they hunted for deer and wild pig, but they might bring home squirrels if they had no luck with larger game.

On the day of the survey for this study, 13 deer (six bucks, five doe, two yearlings) were spotted grazing and browsing on the ridgetops within and adjacent to the zone. Numerous robins were also noted eating toyon and madrone berries along the roadside. A Dry Creek Pomo consultant stated that her grandmother used to set out basketry traps to catch robins.

Fishing

Rancheria Creek was said to have been a good "salmon" stream, with many steelhead being taken. Side creeks, such as Rancheria Creek, were fished during high water in late winter and early spring. True salmon were taken further downstream along main waterways (e.g., Dry Creek or Russian River) when the water level had dropped. Steelhead taken from Rancheria Creek were speared or netted. The last time Dry Creek consultants remembered fishing in that stream was in 1918, when three male relatives "got a whole gunnysack full on the creek where the canyon gets real narrow." This spot might be within the CHZ, but its location would have to be verified by field reconnaissance.

Plant Resources

The Rancheria Creek CHZ was of special significance to Dry Creek Pomo consultants because of the presence of several large groves of tan oak trees (*Lithocarpus densiflora*) in the area, from which they and their ancestors had gathered acorns. Although other species of oak occur within Mihilakawna territory, tan oak acorns are preferred over others for their size, productivity, flavor, and the quality of food prepared from them. The headwaters of Rancheria Creek form part of the ecotone of the coastal redwood belt and the Douglas fir/mixed evergreen forest types. Tan oak trees are a component of only the redwood forest vegetational community, and their presence within Dry Creek territory was very important to the Mihilakawna. One consultant, an 88-year-old woman of Dry Creek heritage, stated that her mother gathered acorns from this area when she resided in Dry Creek Valley. She used a trail from Dry Creek which followed the route of old Rockpile Road. In the early days, people traveled there by foot, and later by horse.

The last time Dry Creek Pomo consultants gathered acorns from these groves was in 1910. At that time, one consultant's uncle, James Shackley from Stewart's Point, was working on a ranch there owned by Mr. Soule; Rancheria Creek was then called Soule Creek. Shackley cleared brush and timber for Soule to open up more pastureland. Soule allowed Shackley and his family to camp on his land and to hunt and collect plant resources whenever they wished. The 1910 trip was the last for this family, as Soule took out most of the large tan oaks to sell the bark to a tannery. Tan oaks which were too young in 1910 to be taken for bark have since matured to large productive trees, and in areas where tan oaks were cut out, they have naturally reestablished themselves. A grove of virgin tan oaks, which one consultant estimated to be 200-300 years old, is still standing on the top of the ridge along Rockpile Road within the Rancheria Creek zone.

The consultant's family made the trip from Healdsburg near Fitch Mountain by buckboard up Dry Creek, Warm Springs Creek, and Rancheria Creek. Her grandmother, parents, aunt and uncle, and about four children camped for about a week along Rancheria Creek near the tan oak trees. The men picked up on the hill, where particularly large acorns could be found,

also hunting while there for deer and wild pig. The women and children stayed close to camp and collected acorns and buckeye and pepperwood nuts. They left with about five large gunnysacks full of acorns, enough to last their family for a year.

Dry Creek Candidate/Critical Habitat Zone

Introduction

A precontact territorial boundary passed along the ridge between Dry Creek and the Russian River, bisecting the Dry Creek CHZ. The area east of this summit was occupied by the Makahmo (Cloverdale Pomo); west of the summit were the Mihilakawna (Dry Creek Pomo) or the Shahkove, if upper Dry Creek is considered a separate group. After 1820, all of the zone would have been used more frequently by the Makahmo.

Consultants knew of no habitation, burial, ceremonial, or archaeological sites within the zone.

Hunting

One consultant had hunted in this zone when he was a teenager, 40 or 50 years ago. He and a group of friends would "take our guns out, mostly to get out of the house and have something to do," entering the area by means of what he called the "Coon Hollow Trail." This trail followed the route of Hiatt Road and continued south-southwest, passing over the ridge on the eastern side of Pritchett Peaks to Dry Creek, where it met Old Rockpile Road. From Pritchett Peaks, Icaria Creek, and Brush Creek areas, they hunted mostly small game, pigeon, quail, cottontail, and jackrabbit. The consultant noted that robins were as plentiful then as starlings are now; they would fly into the valley from the surrounding hills to eat olives and grapes. The Coon Hollow Trail is probably the same trail mentioned by an elderly Cloverdale Pomo consultant, who stated that her mother used to travel over the hill to gather sedge basket roots from a site on Dry Creek.

Plant Resources

Although consultants were not aware of past use of specific plant resources in the Dry Creek CHZ area, they noted three plants there which

were of particular interest: tan oak (*Lithocarpus densiflora*), yerba buena (*Satureja douglasii*), and hazel (*Corylus cornuta californica*). On the day of the survey, consultants gathered yerba buena, the leaves of which are made into a medicinal and beverage tea, and hazel switches for use in basketry. One Cloverdale consultant, a renowned Pomo basketweaver, made a miniature baby basket from the switches she gathered. She asked that basketweavers be allowed access to the site if the land is acquired by the Corps of Engineers.

Upper Dry Creek Candidate Habitat Zone

Introduction

The geographical and cultural boundary between two distinct Southern Pomo-speaking groups was formed by the summit of the ridge separating the drainage of Dry Creek and the Gualala River. Prior to contact, the Dry Creek side may have been controlled by a separate upper Dry Creek group, the Shahkowe, or upper and lower Dry Creek may have been held by a contiguous group, the Mihilakawna. The political relationship between the upper and lower groups is unclear; they are said to have spoken the same dialect, while each group had its own central village community (see Kroeber 1925: 233; Merriam and Talbot 1974:20). During the historic period (after 1820), the Makahmo (Cloverdale Pomo) increased their use of the upper Dry Creek drainage.

The Gualala side of the ridge was controlled by the Wishachamay, which may have actually been composed of two or three separate village communities. Wishachamay territory included Rockpile Creek, Buckeye Creek, and the upper reaches of the Middle Fork of the Gualala River. According to Kroeber (1925:233), each of these three geographical units would have comprised a "village community." Stewart (1943:51) named two separate "tribes" within the territory that this study has identified as Wishachamay--the Yotiya of Rockpile and the Hiwalhmu of the Middle Fork of the Gualala River. That portion of the Upper Dry Creek CHZ in Wishachamay territory would therefore have been part of the Hiwalhmu "tribe" or "village community." Consultants to Stewart (1943) claimed that the Hiwalhmu had their own chief and assembly house, as did the Yotiya of Rockpile. The Wishachamay broke up very early,

some moving to Point Arena, Yorkville, and Stewart's Point, while others married into Cloverdale and Dry Creek Pomo groups.

This zone was used by both groups primarily for resource procurement, mostly hunting and fishing. No habitation, burial, or sacred sites were recorded as a result of this survey. Two old trails pass within the Upper Dry Creek CHZ boundary.

Habitation Sites

There are no ethnographic villages or campsites within the zones recorded in the literature, nor did consultants have knowledge of any specific sites. The nearest settlements were Yorkville to the north, the Russian River valley around Cloverdale and lower Dry Creek to the east, and Rockpile and Stewart's Point (Haupt Ranch) to the west. Barrett (1908) recorded six old village sites west and south of this zone, an area which would fall within Hiwalhmu territory; the nearest of these sites was Bulakowi, 'Indian potatoes,' in the mountains between Wolf Creek and the north fork of the Middle Fork Gualala River, about 4 miles south of the Upper Dry Creek CHZ.

Cloverdale and Dry Creek Pomo consultants stated that "in the early days there were Indians living all over in the mountains," and there must surely have been campsites in or near this zone because of the good hunting and fishing in the area. According to consultants, people might camp at a good spot for a week in order to dry their catch or kill prior to returning home. Present-day visits to the area are confined to one-day trips. The high density of archaeological sites recorded on WSCRS lands along Dry Creek adjacent to this zone attest to intensive use of the area over a long period of time (2770 B.C. for upper Dry Creek).

Trails

The northeastern and southeastern corners of Upper Dry Creek CHZ are transected by two trails connecting Dry Creek and the Russian River to the coastal area. A Makahmo consultant stated that an "old trail" followed Dry Creek all the way to Yorkville and was probably used by both Cloverdale and Dry Creek people. From Cloverdale, the trail roughly followed the same route as present-day Hot Springs Road; from Dry Creek Valley, the trail followed

Dry Creek into Yorkville. These trails, and later the roads which followed them, were also used by the Cloverdale Pomo to gain access to fishing sites on Dry Creek, Galloway Creek, and Rail Creek and to hunting areas throughout the drainage.

The trail through the southern portion of the study area was a major coastal route used by the Cloverdale Pomo, as well as other groups from as far away as Lake County, to reach Annapolis, Stewart's Point, and Gualala. From Cloverdale, the trail followed Hot Springs Road to Kelly Road, thence through the mountains to the coast. This trail is not known to have been used since the late 1800s. Since that time, the Cloverdale and Dry Creek Pomo traveled by buckboard and later by automobile to the coast along a trail which generally follows the route of present-day Skaggs Springs-Stewart's Point Road to Stewart's Point; an alternate route was along Russian River to its mouth at Jenner, thence continuing south to Bodega Bay or north to Russian Gulch.

Hunting

The upper Dry Creek area has been an important hunting area for the Dry Creek and Cloverdale peoples from precontact times to the present. The relatively high density of archaeological habitation sites recorded in the surveyed portions of Dry Creek, within Corps property, attests to intensive use of the area by precontact peoples. Cloverdale Pomo use of resources and settlement in upper Dry Creek increased after the 1820s, when Spanish invasion of the San Francisco Bay Area and raids on Russian River Valley Indian groups forced shifts in population and settlements to more isolated areas.

Indians were relatively free to hunt "the old way" in upper Dry Creek until the 1900s, when game laws became more strictly enforced by government officials and landowners. Prior to this time, families camped along the creek for up to a week, sun-drying or smoking most of the deer meat for later consumption. There were no bag limits and both male and female deer were taken. After 1900, permission to hunt might be obtained from landowners or ranchers with whom individuals had established relations through employment or friendship. Most Indians worked on agricultural ranches further into Russian River Valley, however, and did not have connections

with sheep and cattle ranchers in upper Dry Creek. Some Indians who had jobs cutting wood were allowed to hunt in season and take wood out for their personal use.

Present-day Cloverdale and Dry Creek Pomo who have hunted in the area learned of hunting places and skills from elder family members and friends, passing the knowledge from generation to generation. One elderly Cloverdale Pomo consultant began hunting in upper Dry Creek when he was a teenager. A group of two to four young men would hike into the hills cross-country, using a route where they would not be seen from any roads or ranch houses. Sometimes they would have someone "drop them off" along the road and would walk back cross-country towards town. If they were fortunate enough to get a deer, they waited until dusk to pack it out. Hogs, pigeons, rabbits, robins, and quail were taken. This type of hunting was done regardless of season. Later, the consultant acquired permission to hunt in the Upper Dry Creek CHZ after his daughter had married the son of a foreman at the Cooley Ranch. As of last year, there is a new foreman, and the consultant no longer has access to the ranch.

Consultants claimed to have fed their families for many years with fish and game from the Dry Creek drainage. However, restricted access to hunting areas has resulted in decreased dependence on wild game as a food source. Future hunting in the area would be limited to poaching.

Fishing

Salmon, steelhead, and trout fishing in Dry Creek and its tributaries has been an important activity for the families of both Dry Creek and Cloverdale Pomo consultants. All remembered stories related to them by their grandparents about camping along the creek for a week or two in order to dry a major portion of their catch. The meat was cut into strips and sundried or smoked, or barbequed first and then dried. The exact locations of these camping sites are not presently known, but it is assumed they would have been near some of the favored fishing spots which members of both groups have used to the present day. Fish and other stored meat products supplemented the diet throughout the year. One consultant's grandmother remembered having so much fish to eat year round that they got tired of it.

The "best spots" in upper Dry Creek are located on Dry Creek, Cherry Creek, Rail Creek, and Galloway Creek. Galloway Creek and a short stretch of Dry Creek fall within the CHZ. These sites were used consistently until 1972, the last time consultants interviewed had fished there. In their lifetimes, they have seen many changes take place in fishing and related activities. As children (ca. 60-80 years ago) they often accompanied their families on fishing trips to Dry Creek. Female consultants participated more in spring and summer trout fishing, their task being to chase the fish into awaiting baskets or nets, or to scoop out fish floating on the surface of pools which had been sprinkled with mashed "fish poison plants." Salmon and steelhead fishing was a male activity.

An elderly (65 years old) Wishachamay consultant had been fishing in the vicinity of Cooley Ranch since he was 12 or 14 years old, when he learned how and where to fish from older relatives and friends. He did not remember there being catch limits or seasonal restrictions in fishing in his younger days. A group of two to four men would make the one-day trip--or one-night, if night fishing--getting three or four fish each at a time. They went for the late winter and early spring steelhead runs, "beginning after about two good rains." The fish were then mainly caught by spearing, a method against the law. In order not to draw attention to themselves by using spears, fishermen sometimes employed a device which resembled a fishing pole from a distance, but which functioned something like a spear. Another method consisted of a large fishhook, similar to a gaffing hook, placed on the end of a line attached to a willow pole; when the fish was giggered, the string could be detached and the fish pulled in on the line. At times, they fished with the conventional hook and line.

According to consultants, Dry Creek has been officially closed to fishing since the 1940s or 1950s, when the California Department of Fish and Game declared it a spawning stream. Consultants noted that the area has been patrolled more frequently by game wardens since that time, and landowners have become stricter about trespassing. Some consultants stopped fishing there altogether; others continued to "poach," but the strategy changed. Smaller groups or individuals went out to fish, and one person was posted to watch "for the law" or landowners. According to a Cloverdale consultant, although no one was ever caught by the game warden, he was

caught twice by a landowner. In one instance, the consultant's son was supposed to watch the road and tell his father if anyone was coming, but he either ended up daydreaming or became so nervous when he saw a rancher approach that he could not respond. The second time, the consultant was using the gaffing hook device in a small side-creek by Hot Springs Road when the landowner found him and asked him to leave. About a month or two later, the same landowner was reportedly looking for him to find out how to make his "fishing contraption." The last time consultants interviewed had fished in the zone was in 1972, when they "couldn't outrun the game warden any more."

One consultant fed his family for many years with venison and fish from the Dry Creek and Big Sulphur Creek drainages. He smoked the fish using alder wood he found growing along the creek banks. He also froze some of his catch. Other Dry Creek and Cloverdale Pomo consultants agreed that hunting and fishing were done more out of necessity than tradition or sport, and that a major portion of their diets was supplemented with fish and game taken from the Dry Creek area.

Summary

Lands within the CHZs have been used by Native American consultants and their families for several generations. Important trails that connected the Dry Creek and Russian River valleys were identified. Areas of special importance to consultants were the tan oak groves in the Rancheria Creek and Upper Dry Creek zones, where consultants remembered acorn gathering over 70 years ago. The Upper Dry Creek Zone was reported to contain major hunting and fishing areas. Until the past decade, when access to these areas has been restricted, the Upper Dry Creek area provided fish and game for several families.

Ethnographic villages and campsites in and near the Rancheria Creek Zone are recorded in the literature, but habitation sites and sites of spiritual significance were not reported during this study. No on-the-ground survey was undertaken for the study, however, and unidentified ethnographic sites may be present within the CHZs.

CHAPTER 4

HISTORIC LAND USE

Introduction

In this chapter, the historical settlement of the lands within the candidate/critical habitat zones is described in terms of land tenure, economic patterns, and demography. The purpose of this overview is two-fold: (1) The research provides background for the prediction of the types of historical cultural properties which may be present in the study area; (2) With the benefit of these data, informed judgements can be made regarding the potential impact on these properties of the Corps of Engineers' proposed alternative courses of action in the CHZs. In addition, should the Government take some form of interest in the study area, this overview will provide a contextual framework within which to evaluate the research potential of historical cultural resources. Emphasizing the study area's place in the developmental history of this state, the concept of significance by reason of "representativeness" (Hickman 1977:269-275) is suggested as an appropriate management tool for application to the study area's cultural resources.

Research Methods

Information in this section was derived mainly from Federal census records for the years 1860-1900; deed books in the Sonoma County Recorder's Office; and marriage records, county tax assessments, and county histories housed at the Sonoma County Public Library in Santa Rosa. The maps were compiled from notes and maps of the U.S. Surveyor General's Office (1872-1896); Bowers' (1867); T. Thompson's (1877), Reynolds' and Proctor's (1897), and Peugh's (1934) maps of Sonoma County; patent records on file at the Bureau of Land Management in Sacramento; "Township Books" and "Breadboard Maps" on file at the Sonoma County Recorder's Office; 1912 tax assessments at the Sonoma County Tax Collector's Office; and USGS maps at the United States Geologic Survey archive and offices in Menlo Park, California. The work of Greenwood et al. (1980a, 1980b) and Theodoratus et al. (1979)

served as models for the general direction and method of presentation and provided a broad overview for the project and data specific to the area.

In order to use these documents effectively, an understanding of their limitations is necessary. The U.S. manuscript census returns for 1860, 1870, 1880, and 1900 are available on microfilm. These copies are often very difficult to decipher because of their loose, handwritten style and faded reproduction. Minor errors in spelling of names and discrepancies in an individual's age between successive enumerations are rampant within these documents. Foreign-sounding names are often spelled phonetically, which makes such persons difficult to trace. In addition, women and children often changed their first names in successive documents, wavering between diminutives, nicknames, and more formal styles of address. Ages are often rounded off to the nearest five years, especially on the earlier reports; this practice is most common for old people, non-English speakers, and Indians. Discrepancies are common in the "Place of Birth" column on successive returns; many persons apparently misunderstood this entry, giving instead their last place of residence. Mistakes in filling out the detailed agricultural census form are also apparent. For instance, discrepancies were noted in the relationship between acreage and production for various crops and properties (e.g., Bishop's 8000 lbs. of grapes from one acre).

Besides these errors in recording, the census returns also possess errors of omission. Not everyone living in an area was recorded, as enumerators did not thoroughly comb the outback. In the study area, for example, the 1870 census taker apparently did not "explore the remote ridges and canyons via horse and foot trails," as a result of which he "recorded only those persons residing along the more traveled wagon roads" (Greenwood et al. 1980a:221). Lastly, the census returns do not list addresses; therefore, the connection between a household and a parcel of land must be determined through the use of a census in combination with other sources such as maps and patent records.

Unfortunately, two census manuscripts which would have been very helpful on this project--those of 1890 and 1910--were not available. Most of the 1890 census was destroyed by fire, while the 1910 manuscript is not readily accessible.

Research for this project made use of a source of data overlooked by previous data researchers--the 19th-century Sonoma County Tax Assessment Rolls, which are currently in storage. These documents have not been catalogued and do not appear to be complete for all years. The kind of information recorded by the assessor varied by year and occasionally by individual. For instance, the location of real property was sometimes described by listing neighboring parcels' owners, sometimes by township, range, and quarter sections, and sometimes merely its value was noted. In some years and in some individual listings, the values of all items of personal property were lumped together, while at other times specific kinds of livestock, and such items as firearms, pianos, furniture, watches, and sewing machines, were listed and valued individually. Therefore, while this record does not supply data for the comparison of all persons and items for all years, it is a good source for general comparisons; for some years and persons, however, specific comparisons of the variety and value of property, real and personal, can be made.

Study limitations prevented a full title search for properties within the CHZs. For this reason, the land-tenure maps (maps 12-23) were based primarily on the sources listed above rather than on data contained in the Sonoma County Recorder's Deed Books. The tenure maps are not precise for any one date but reflect the general pattern of each period. Some landholders may be retained on these maps longer than their period of ownership because of the lack of information as to their status in the records consulted. Had time permitted, reference to the Deed Books could have resolved these problems. Two other factors which may outdate portions of the maps are the long period of escrow in which some of these properties were held during transfers and delays between final transfers and their official recording. As research was restricted to the areas within the candidate/critical habitat zones, it was difficult in most cases to assess the connections of the subject parcels with areas nearby or far afield. A common historical pattern of landholding in this part of Sonoma County consisted of acreage scattered throughout many townships; the holdings of a given individual were often not contiguous. The greater area and more favorable environment of the Upper Dry Creek CHZ made land use in this zone easier to research and analyze than in the smaller Rancheria Creek and Dry Creek zones, which contain a higher percentage of marginal lands.

The nature of the sources used for this study has created a bias in favor of those persons already possessed of historicity--in this case, large landowners--for such persons are most easily recognized and traced through documents. The identification of early settlers who never held title to the land they used, and of later families who leased or managed holdings of another, would require more research. Further work with the sources consulted on this project might supply some of this information. Additional sources could enlighten and enliven the history of the subject parcels.

Sources which were overlooked or not used to their full potential for this study include county tax assessments, probate records, newspapers, and oral history. The present survey of county tax assessment rolls is believed to be incomplete due to the difficulties in working with these haphazardly stored and poorly indexed volumes. Further work with this source would probably uncover more assessments for study-area residents. The only probate record referenced in this work, collected by previous ethnohistoric researchers for the WSCRS, clearly indicates the value of this source. Probate records for CHZ residents could help define their periods of tenure and be used to infer their relative economic standing. No work with newspapers was done for this study. Although time-consuming, research with newspapers is invaluable for determining the regional flavor of the time, as well as very useful specific information. This study has identified a number of potential consultants who spent summers on the Matthews' Ranch. It is believed that these people could supply information on areas yet to be adequately researched, specifically family life, social ties, and recreation.

Settlement and Land Use

A history of the general study area prior to 1855 is presented in Theodoratus et al. (1979) and Greenwood et al. (1980a). No new sources or references for this early period specific to the CHZs were discovered during the course of research for this study.

By the early 1850s, settlers had laid claim to the rich alluvial lands at the confluence of Dry Creek and Warm Springs Creek. Some settlers "squatted" on portions of Mexican land grants in hopes that these grants

would not be confirmed by the Federal Government and that they might then lay their claims. Other settlers occupied public lands with the probable intention of establishing preemption rights to patent the parcels at a later date. All lands within the candidate/critical habitat zones were within public domain and, therefore, open to settlement.

First Phase, 1855-1864: Early Settlement

The first map references to settlement within the study area are found on Bowers' map, which, although published in 1867, appears to have been compiled prior to 1863 (Greenwood et al. 1980a:216). Bowers recorded a trail along Long Ridge, connecting Healdsburg and the coast. The W. Schuster house and "Grouse camp," near the head of Smith Creek, fronted upon this trail. Grouse camp, apparently located near a spring, may have been a resting place for those journeying west to the copper mines of the Gualala Divide or to the coast.

The first recorded settlers in the area, the Schuster family, laid claim to land suitable for grazing in the southwest corner of the Dry Creek CHZ. They ran a stock ranch, in contrast to the farming ventures of their Dry Creek neighbors to the east. The Schusters arrived in the area prior to 1860, for they are recorded on the census for that year. At that time, the family consisted of a middle-aged couple and two pre-teenagers, all born in Missouri. The population census did not list Mr. Schuster's occupation, and the agricultural census does not enumerate the family--possibly indicating a very small ranching operation at this date. Mrs. E. Schuster's county tax assessment for the year 1861, however, indicates this family's early emphasis on cattle raising. The value of her improvements on public land was \$100, horses \$75, cattle \$875, and vehicles \$10; her assessed value on farming utensils and household furniture was zero (see table 3).

The movements of Tennessee Bishop, another early study-area settler, are confusing during this period. A carpenter by trade, Bishop immigrated to California from Missouri in 1852. He worked at his trade and served a brief stint as Deputy Sheriff of Mendocino County prior to marrying Miss Eliza Smith and buying a farm in Petaluma in 1855. According to a county history, Bishop's movements were as follows:

In May, 1858, he left Petaluma for the northern part of Sonoma county, going into the mountains and locating what is now known as the Rock Pile Ranch. He remained there for seven years and engaged in cattle raising, when he sold his ranch and bought a farm at the head of Dry Creek Valley. In 1865, he sold his farm and removed again to the mountains, settling on the ranch where he now resides, and which he obtained by purchase (Munro-Fraser 1880:502).

This biography is unclear on a number of points. First, it locates Bishop on Dry Creek for a very short time, contrary to other documents. It also has Bishop selling a ranch and a farm, neither of which were available for purchase from the Government at the date indicated; lastly, the biography leaves uncertain whether the first "Rock Pile" Ranch and Bishop's second ranch are the same property.

The 1860 census placed Bishop, his wife, two small children, and his 18-year-old brother at the head of Dry Creek Valley, next to James Pritchett. The latter information replicates the group's position on Bowers' map and on Bishop's 1864 county tax assessment. According to the 1860 agricultural census, T.C. Bishop concentrated on dairy cows and beef cattle, and grew no produce. Although Bishop's 1861 county tax assessment does not indicate the location of his holdings within Mendocino Township, it does show considerable investment in cattle. The value of his improvements on public land was \$200, horses \$100, cattle \$620, vehicles \$30, hogs \$30, and farming utensils and household furniture \$50. The cash value of Bishop's real property was assessed at \$400.

Thus, in 1860 and 1864, Bishop was shown at the head of Dry Creek Valley at times when the historian Munro-Fraser placed him in the Rockpile area. If Munro-Fraser's dates are not in error, Bishop may have run the two operations concurrently, for his emphasis does appear to have been stock raising, and the Rockpile area was more suited to such an endeavor than the Dry Creek Valley land, which could have been put to more profitable uses. According to local lore, Bishop's brother was a "fugitive from justice," lurking in the hills near what became Rockpile Ranch (Theodoratus et al. 1979:81, quoting Shipley 1965:134-135). Perhaps he also tended his brother's cattle.

TABLE 3
COUNTY TAX ASSESSMENTS 1861-1870

	<u>Acreage</u> *	<u>Value of Land and Improvements</u>	<u>Value of Personal Property</u>
<u>Bishop, T.C.</u>			
1861		\$ 200	\$1230
1864		300	392
1867	160	100	1060
1870	5000	700	1820
<u>Grissom, W.</u>			
1870	600	500	2205
<u>Samuels, J.</u>			
1870	700	700	1355
<u>Shuster, Mrs. E.</u>			
1861		100	960
1867	160	300	975
<u>Sibbald, J.</u>			
1867	160	300	1075
1870	2000	1000	3760

* Held by possessory claim and improvements on public land.

Summary 1855-1864

During the first phase of study-area settlement, two families each made possessory claim to 160 acres under the 1841 Preemption Law, which gave them the right to settle that amount of land and subsequently purchase it free from competitive bid at the minimum Government price (Hibbard 1965:158). Both of the families came from Missouri and lived and raised cattle on their ridgetop claims. A trail connected the two families with Healdsburg and the coast.

Bishop and Schuster are representative of the many small ranching operations in the state which developed on public land during this period to supply meat to California markets. The wave of migration to California during the 1850s created a demand for meat which, in combination with the limited local supply, promoted a period of intensive speculation in the cattle industry. When beef prices fell in 1860 and 1861, the state's ranchers held on to their cattle, many of which drowned in the floods of 1862. A severe two-year drought, following on the heels of this first disaster, brought an end to this intensive speculative ranching period. During the drought, vast numbers of cattle, sheep, and horses died; estimates on the loss of cattle in California ranged from 200,000 to one million head (Burcham 1961:146; Wentworth 1948:174-175).

Little can be said about the economic status of these two resident families during this period. Clearly, most of their wealth was invested in cattle. Bishop's value of livestock (\$2,495) in the 1860 agricultural census was twice that of the average value of persons enumerated in Mendocino Township, indicating that he did have the capital to invest. On the 1861 county tax assessment, cattle accounted for 50% of Bishop's personal property, for 90% of Schuster's. The drastic drop in value of Bishop's personal property in 1864 may have been due to losses of cattle in the drought of that year. Besides erecting fences and barns, neither family made significant capital outlay to improve its land, nor was capital invested in land which was still in the public domain.

Prior to Government survey, use of public rangeland was free; no legal authority existed which could either permit or prevent the use of any particular parcel by anyone wishing to use it (Wentworth 1948:498). There-

fore, although Bishop and Schuster had staked their claims to particular areas--claims which probably were observed due to the relative abundance of free range--other ranchers may well have used CHZ properties for grazing.

Archaeological and extant sites which can be expected to date from this period include campsites and corrals connected with cattle ranching, as well as the homestead sites of Bishop, Schuster, and other less successful pioneers. Campsites connected with hunting and trapping and with persons passing through on the trails might also be discovered in the area.

Second Phase, 1865-1875: Early Patents

The second phase of settlement was marked by the first General Land Office (GLO) surveys of the most favorable agricultural lands within the study area, an action which made the lands available for patent. By this time, settlers had spread throughout the area. Some of these people purchased or homesteaded their land as soon as it was surveyed; others, however, waited decades to legalize their land claims. During this second phase, all of the early settlers who later became large, successful land-owners arrived in the study area.

The 1867 county tax assessment was the first document to place Tennessee Bishop in the Rockpile Ranch area. At this time, he was assessed on a 160-acre possessory claim. Since his 1864 assessment, the value of his improvements had decreased from \$300 to \$100, while the value of his personal property, probably mainly livestock, had increased from \$392 to \$1,060, a figure still below his value in 1861.

Mrs. Bishop died in January 1870 at age 30, leaving Tennessee with six children--two boys aged 13 and 8, and four girls aged 11, 5, 3, and 1. A housekeeper, Mary Bartenshaw, whom Bishop married in the fall of 1871, and a school teacher, Ralph Rider, resided with the Bishop family in July 1870. It is not known under what arrangements Mr. Rider taught--he may have been a private tutor for the family or a public schoolmaster. Bishop is credited with influencing the establishment of a public school in this region (Munro-Fraser 1880:502), and Mr. Rider may have been its first teacher. By this time, Bishop appears to have had a certain amount of influence, for a public roadway was surveyed from Healdsburg to his property. Though he never sought public office, Bishop had strong political views; he

is well remembered for his pro-Confederate stance during the Civil War and was a delegate to all but three of his party's conventions from 1855 to 1880 (Munro-Fraser 1880:502).

Bishop listed himself as a stockraiser on the 1870 census, with his personal property valued at \$1,200. His county tax assessment for the same year noted his claim to 5,000 acres of land by possessory right and improvements. Since most land was not yet open to legal purchase, this claim indicates the amount of public domain which Bishop used in his operation and therefore considered his own. The value of improvements to this land was \$700, and the value of Bishop's personal property was \$1,820.

In 1872, GLO surveyor Chapman noted Bishop's house and barn in T11N/R12W, Section 29. A road now passed from Healdsburg to Bishop's house, at which point it continued as a trail to the coast. "Rough mountains unfit for cultivation" were marked to the northwest of Bishop's house, while land to the north and east was described as "Hilly and mountainous land. Soil 2nd and 3rd rate. Well adapted to grazing." This survey opened the way for land purchases. In October of 1874, Bishop purchased 160 acres, including the quarter section containing his house and barn, with a land script in favor of the State of Georgia. This script was sold under the 1862 Grants for Agricultural and Mechanical Arts Colleges, which gave each state 30,000 acres of nonmineral land for each senator and representative. States possessed of insufficient public land were given an equivalent amount of land script, which entitled the purchaser to unoccupied public lands in other states (Dana and Krueger 1958:244; Hibbard 1965:325-332). The proceeds of these sales were to fund the establishment of colleges of agriculture and the mechanical arts.

John Sibbald, another large landholder, first appeared on the 1867 county assessment as Bishop's neighbor to the west. At this time, Sibbald was apparently in partnership with the Roberts family of husband and wife. Their 1867 assessment lists a possessory claim on 160 acres of public land, with assessed improvements of \$300 and personal property of \$1,075. The 1870 census lists both men as stockraisers, with personal property valued at \$7,000 each. All three persons were 25 years of age and from Scotland. Sibbald alone was listed on the 1870 county tax assessment; at this time he claimed 2,000 acres by possessory right and improvements. The improvements

had an assessed value of \$1,000, while his personal property had an assessed value of \$3,760. In 1872, the Government surveyor noted J. Sibbald's house in T11N/R12W, Section 31, just outside the Upper Dry Creek CHZ. In October of 1874, Sibbald purchased 160 acres with a land script in favor of the state of Georgia sold under the 1862 Grants for Agricultural and Mechanical Arts Colleges. In the same month, he married Luella A. Meyers, step-daughter of his neighbor to the north, James Samuels.

James Samuels settled in the Upper Dry Creek CHZ sometime around 1867. Samuels, born in Ohio in 1831, learned the harness and saddlery business, which he put to good use in California, first in mining country and later in Petaluma. In 1856, he married Sarah H. Meyers, who had a daughter, Luella, by a previous marriage. From 1857 to 1866, Samuels engaged in farming in the Russian River area; he then purchased a stock ranch 28 miles northwest of Healdsburg (Munro-Fraser 1880:528).

The 1870 census shows that the Samuels' had a second daughter, Isabella, born in 1865. They also employed two male laborers and one male domestic helper. James listed his occupation as stockraiser and his personal property as \$6,800 in value. His county tax assessment for the same year showed his claim to 700 acres of land by possessory right, with improvements valued at \$700 and personal property at \$1,355. In 1872, surveyor Chapman noted James Samuels' house within a grove of trees in T11N/R12W, Section 7, just outside the CHZ. The house was near a road which branched to the north off of Bishop's road. In September 1874, under the 1820 Sales of Public Land Act, Samuels purchased the 160-acre parcel which contained his home.

James Samuels was a successful rancher and politician. His portrait (Munro-Fraser 1880:248) shows a very fashionable, short-haired, clean-shaven man in a suit and tie--not the expected bewhiskered pioneer. In 1875, he was elected to the state legislature, and, in 1876, the State Agricultural Society appointed him a Commissioner to the Centennial Exhibit in Philadelphia.

The W. E. Schuster family was assessed in 1867 on a 160-acre possessory claim and improvements on public land in the Dry Creek CHZ. The improvements were assessed for \$300, while their personal property was valued at \$975, showing little change in value from six years previous. This information is from the last documentary reference to the Schusters that

could be found.

William Grissom, his wife, Lucy, and her sons, William and John Bryant, took over the Schuster place some time between 1870, when they were living on Dry Creek (Greenwood et al. 1980a:76), and 1872, when the Grissoms' house was noted on Long Ridge by the GLO surveyor.

The Grissoms are not listed in the 1870 census. In 1870, Lucy Grissom would have been 50, John Bryant, 22, and William Bryant, 19. Lucy was born in Virginia; although both of her sons listed California as their birthplace in 1880, the younger Bryant listed Missouri as his birthplace in 1900, and it is probable that they were both actually born in that state.

In 1870, Will Grissom was listed on the county tax assessment rolls as claiming 600 acres by possessory right and improvements. The assessed value of the improvements was \$500, while assessed value of his personal property was \$2,205. In 1872, the Government surveyor recorded Grissom's house, barn, field, and fences along the Healdsburg-to-Bishop Road in T10N/R11W, Section 4; directly north was a small area marked "timber." Shortly after this survey, the family filed a patent under the Homestead Act of 1862 which gave them free title to 160 acres of land after five years of occupancy. The occupancy clause was fulfilled, and the patent recorded by Lucy Grissom, widow of William Grissom, in September 1879; the patented area included the site of their barn and dwelling. The Grissom/Bryants appear to have carried on the Schusters' emphasis on stock raising. An 1874 directory lists John Bryant as a stockraiser occupying the "Sheuster Place" 16 miles northwest of Healdsburg (Paulson 1874).

The first documentary reference to the Otis family, early and enduring Upper Dry Creek zone occupants, is the 1872 General Land Office Map. Mrs. Otis' house was shown in T11N/R12W, Section 27, just north of the Bishop-to-Healdsburg road. The family, even at this early date, was made up of three generations: Ann Otis; her two sons, Joseph and Isaac; Joseph's wife, Elizabeth, and their two sons, Frederick and Louis. Prior to 1832, Ann and her husband had emigrated from England to Canada, where their sons were born. In 1860, the family left Canada and came to California via a brief stay in Iowa. They arrived in California sometime between 1864 and 1869 and were in the study area by 1872.

The Otises used a variety of tactics over a long period of time to amass their landholdings. After the Government survey, Joseph patented 160 acres to the north of their house in 1875, under the 1820 Sales of Public Land Act. At the same time, he filed a 160-acre homestead patent containing the house under the 1862 Homestead Act; following fulfillment of the residency requirement five years later, the patent was recorded in 1880.

The John Ferry family has been described elsewhere (Theodoratus et al. 1979:250-253) and two historical archaeological sites connected with them have been excavated (Greenwood et al. 1980b:19-39, 77-100). The 1872 GLO survey recorded John Ferry's dairy and barn in T11N/R12W, Section 24, between Dry Creek and the road from Hot Springs to Cloverdale, outside of the Upper Dry Creek CHZ. In 1874, Ferry patented this piece of land, along with 40 acres inside the CHZ, by cash sale under the 1820 Sales of Public Land Act. Both John and his wife Mary had emigrated from Ireland--John in 1850 and Mary in 1860. By 1872, they had six children, aged 7, 6, 5, 3, 1 and an infant. At this date, perhaps in anticipation of needs to come, there was already a schoolhouse located near their residence.

Four other uses were recorded by Government surveyor Chapman during his 1872 survey. The history and use of these parcels are not as clear as those described previously. The house of S.W. Marshall, noted in T11N/R12W, Section 16, presents a problem, as sections 16 and 36 of each township were set aside for sale by the states in aid of their school systems. Thus, the patent history of this section could not be easily traced and was not researched for this study. Marshall had landholdings elsewhere in the area; his county assessment for 1870 listed "7300 acres being the unsold portions of the 3 Leagues or New Sotoyome Grant" valued at \$14,600; his personal property was assessed at \$267. Marshall's position on the 1880 census suggests that he did not live within the study area. On the agricultural census for that year, Marshall claimed a very large and diversified range of landholdings and activities, including 1,440 sheep and 16,000 pounds of grapes sold. Marshall may have used this land in Section 16 for grazing, while he and his family lived elsewhere, probably near their vineyard. More research on Section 16 and on the Marshall holdings could solve this problem.

To the east of Marshall, in T11N/R12W, Section 15, the surveyor noted J.S. Cummings' house just to the north of a grove of redwoods. Cummings' 1870 census return, like Marshall's later record, indicated that he probably did not live permanently in this house. His real estate value was listed at \$9,000, indicating that he held property elsewhere, as land which had not been patented was not enumerated in this way. Cummings' 1870 agricultural census listing showed that he grew winter wheat, Indian corn, and oats and that he raised swine. In July 1874, Amelia Cummings, whose relationship to J.S. is unknown, patented 160 acres near the house site by cash sale. George Blodgett patented the 160-acre quarter-section that included the house site in January of 1874, also by cash sale. Further research on the Cummings family and on Blodgett would be necessary to determine the early uses of this acreage.

Just south of the Bishop-to-Healdsburg road and a branch of the Guadalupe River in the Rancheria Creek CHZ, the 1872 GLO map noted Wilson's house. Since a number of Wilsons resided in this part of Sonoma County during the 1870s, information specific to this individual could not be identified. Shortly after the Government survey, a 160-acre parcel including the house was patented according to the 1855 Rounty Grant Act by John C. Herren, who immediately signed the property over to William H. Moxon. To date, no information has been recovered on Moxon.

In T11N/R12W, Section 14, the surveyor noted "Sherburne's house" and a hot mineral spring. In June 1874, Joseph Sherburne patented the 160-acre parcel containing these structures and a neighboring 160-acre parcel, each by cash purchase. At the same time, Edward Sherburne patented two contiguous 160-acre parcels by cash purchase, giving the family a total of 640 acres. Before their patents had been processed, the Sherburnes sold half of their acreage to James Brennan and David Halls on 23 March 1874. They retained the parcel containing the hot spring, probably for speculation. The Sherburne's interest in the land appears to have been for investment rather than for ranching. They do not seem to have been long-time local residents, as an 1873 mortgage between John Ferry and Joseph Sherburne lists the latter's address as Winchester, Massachusetts.

The General Land Office survey of 1874 noted the house and field of "Mathews," another early study-area settler, in T11N/R12W, Section 11, near the confluence of Dry Creek and McChristian Creek, just north of the

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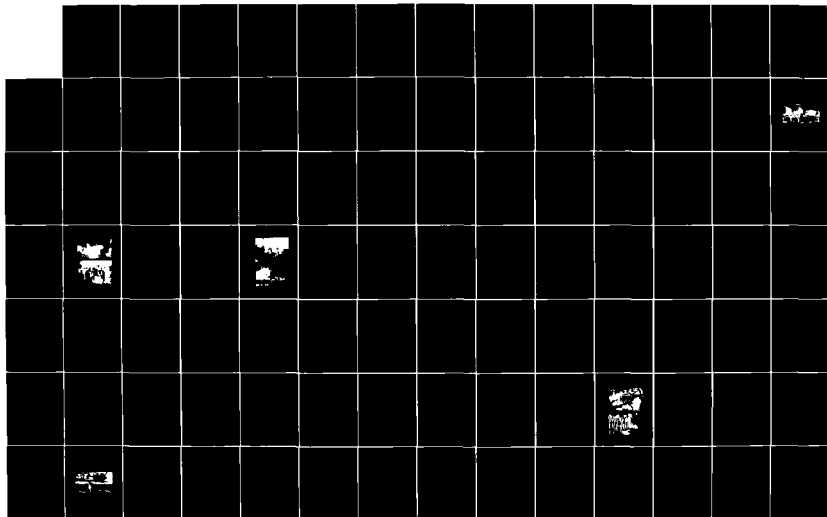
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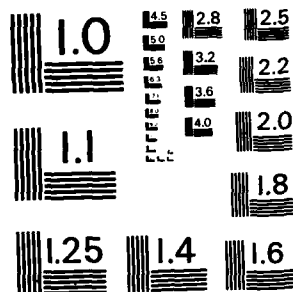
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Upper Dry Creek CHZ. In his notes, the surveyor recorded a fence between Matthews' and Fraser's in Section 14.

George J. Matthews came to California from Wales in 1849. He tried his luck at mining, without notable success, engaged in farming in Alameda County, and was in the hay and grain business in San Francisco until his warehouse burned down. Around 1868, Matthews ran a dairy farm near San Rafael (Finley 1937:328). At this time, his wife Anna's brother, Michael Cochrane, came west from New Jersey for health reasons. Cochrane and his sons were successful Marin County businessmen and lawyers (Guinn 1904:1486); it will be shown later that this connection retained importance to both families for several generations after the Matthews' moved to the ranch and the death of Anna (Cochrane) Matthews.

The residence of one last early settler, Square D. Howard, was somewhat removed geographically from the rest of the study-area settlers, being northeast of Pritchett Peaks, or the "Unsurveyable Chaparral Mountains," according to the 1875 GLO map, in the Dry Creek CHZ. This map noted S.D. Howard's house and field in T11N/R11W, Section 36. The 1870 census listed "Esquire D." Howard, aged 44, living with his three brothers: James, Marshal, and Orville. James, the oldest, was married and had four children. The family originated in New York and came to California some time after 1863, via Illinois and Michigan. The census listed Square's occupation as farmer and the value of his personal property at \$400. Square married around 1873 and probably settled this parcel at that time.

Summary: 1865-1875

The pattern of house distribution shown on maps 12-14 suggests that the siting of many of these structures was chosen to give the residents advantage in later patenting the land on which they were situated. Although title could not be obtained to Government land before it had been surveyed, preemption rights to 160 acres could be claimed by individuals who "improved" the land by constructing a dwelling, fences, roads, etc. Once possession had been established on a particular parcel, a preemptor could apparently sell or otherwise transfer his "place in line"; an analogous modern situation might be the stock exchange trade in precious metal "futures." It is possible that Sherburne, Cummings, and Marshall, all of

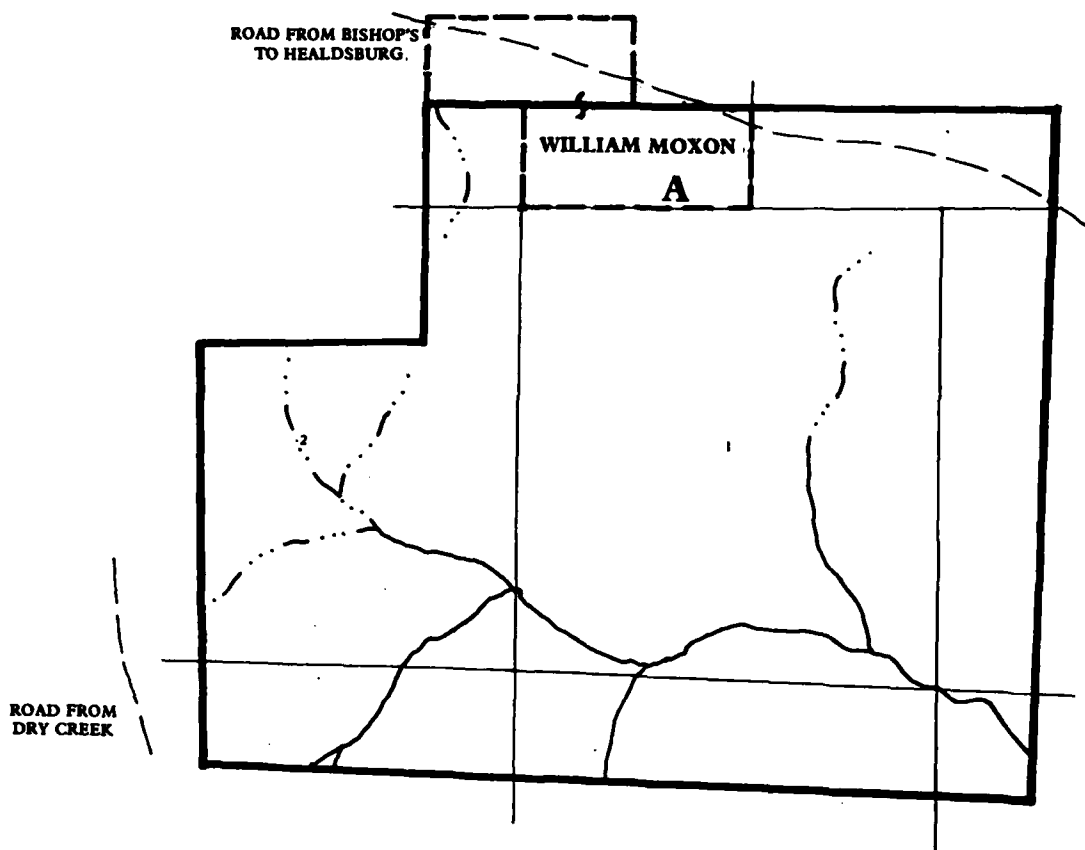
whom eventually owned land in the Upper Dry Creek zone, were such speculative preemptors; it is noteworthy that their houses were spaced one per section. In contrast to settlers such as Bishop, Sibbald, and Samuels, the speculators were not listed as local residents on the 1870 or 1880 census returns, and two were assessed for land in other parts of the county. The location of the Otises' house in relation to the land later patented as their homestead represents another land-acquisition strategy. Since their original tract in sections 22 and 27 was obtained as a cash sale, improvements to this land were not a prerequisite of sale. Positioning their house on land in Section 27, which they intended to homestead and thereby obtain free, gave the Otis family a claim to this land. Thus, the family was assured the present use and eventual ownership of a large parcel with minimal capital outlay.

Settlement on the landscape, including both the siting of most dwellings and of patented land, was of two types: Either valley bottomland adjacent to a year-round, flowing watercourse was chosen, or a ridgetop site was selected, presumably because of the relative ease of access provided by the ridgetop road system.

Land speculation appears to have been practiced in the area of the hot springs in T11N/R12W, Section 14, perhaps stimulated by the success enjoyed by the proprietor of the nearby Skaggs Hot Springs resort. However, no documentary evidence, such as advertisements, has been found which would confirm that the hot springs were exploited commercially at this date.

The 1870 county tax assessment listing the landholdings of individuals in the study area shows that these people claimed ownership, or at least possession, of tracts much larger than they could have claimed by preemption at that time. In 1874, Samuels, Sibbald, and Bishop each purchased 160 acres in the Upper Dry Creek CHZ area, which recently had been surveyed. Their 1870 assessment, however, showed these individuals claiming 700, 2,000, and 5,000 acres, respectively. This disparity is believed to indicate the difference between land held legally and that actually used, however infrequently.

After the disasters suffered by the cattle industry in the early 1860s, many ranchers shifted their interests to sheep. Sheep had proven more resilient during the drought, subsisting on a common weed called "gayeta," which was unpalatable to cattle (Wentworth 1948:175). They also

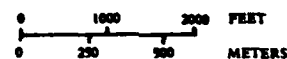


RANCHERIA CREEK CRITICAL HABITAT ZONE

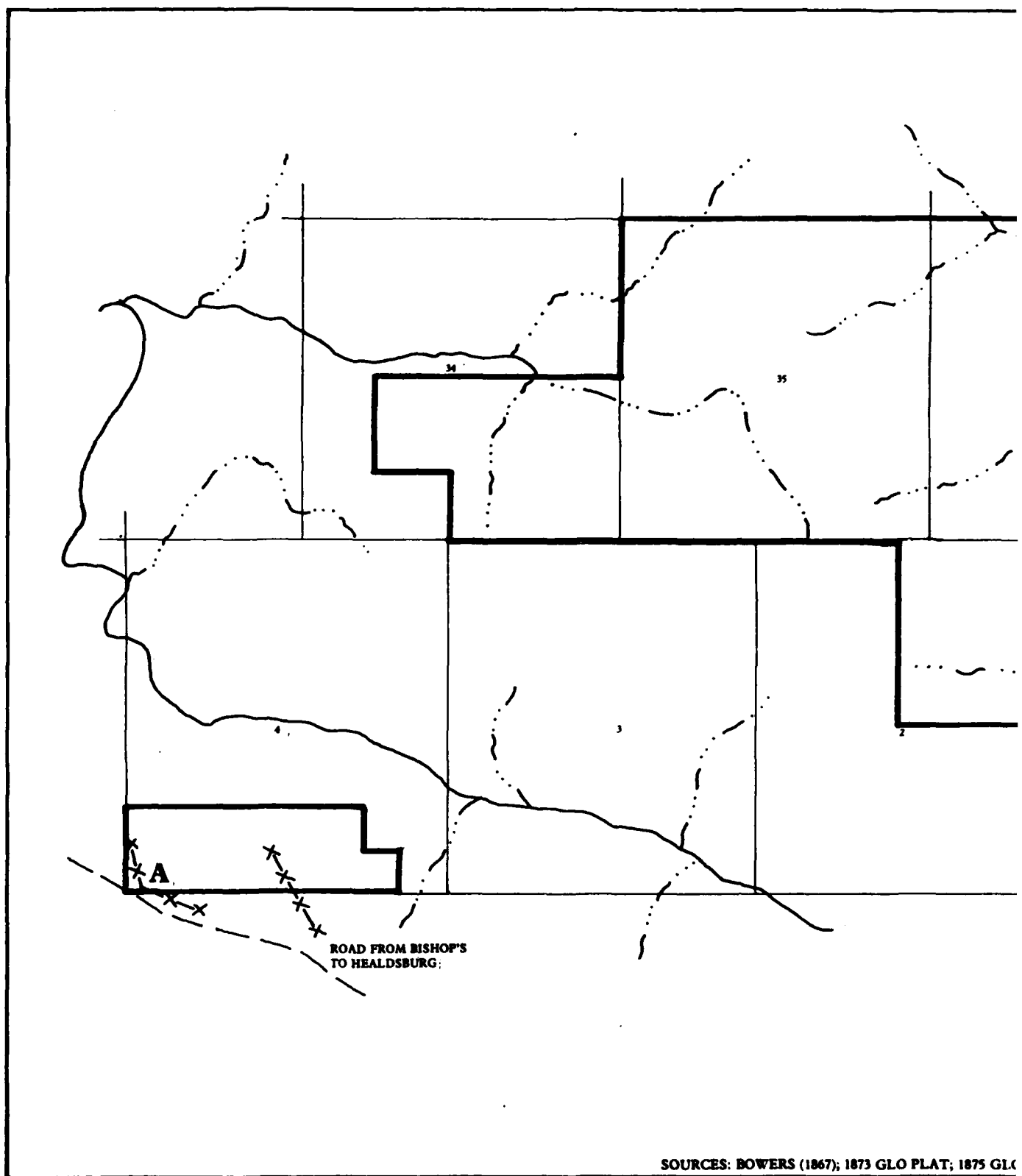
LAND TENURE 1865 TO 1875

A . WILSON'S HOUSE

— — — ROAD



SOURCES: BLM PATENT RECORDS; 1872 GLO PLAT



MAP 13

DRY CREEK
CANDIDATE/CRITICAL
HABITAT ZONE

LAND TENURE
1865 TO 1875

- A** W. SCHUSTER'S HOUSE
GRISSOM'S HOUSE,
FIELD, AND BARN
- B** S.D. HOWARD'S HOUSE,
FIELD, AND FENCES

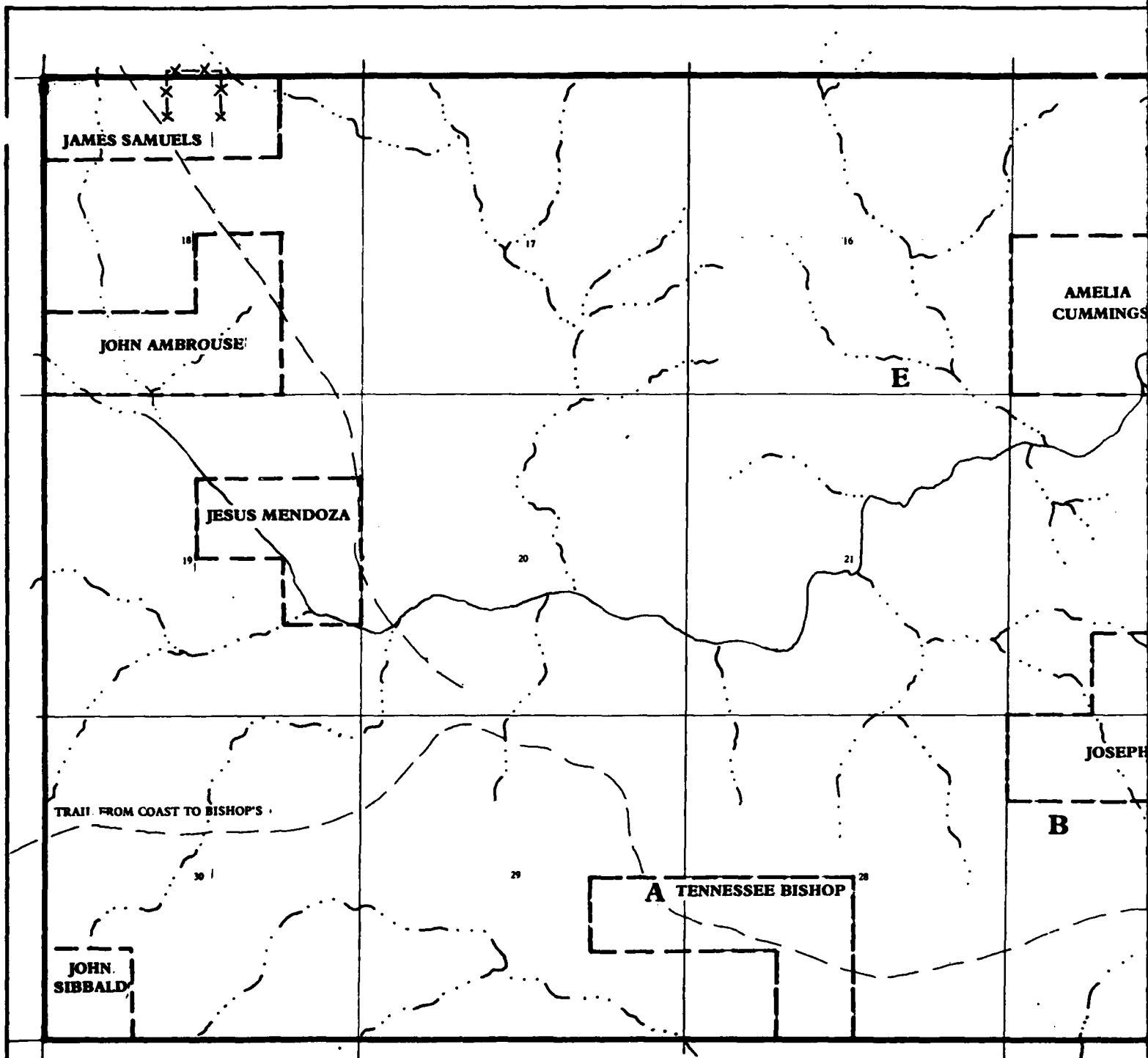
— ROAD

x-x-x FENCE



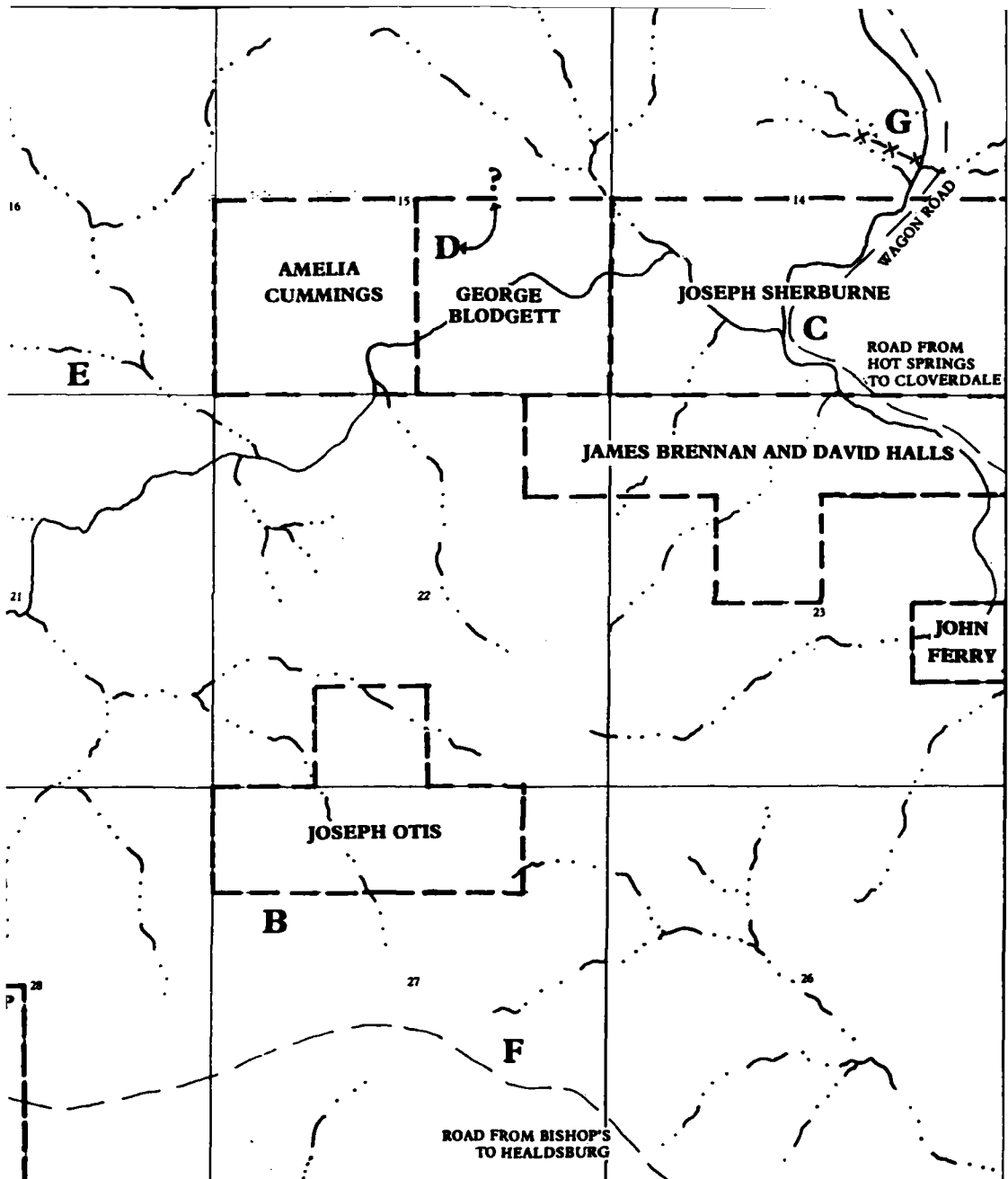
0 1000 2000 FEET
0 250 500 METERS

SOURCES: BOWERS (1867); 1873 GLO PLAT; 1875 GLO PLAT; BLM PATENT RECORDS



- A** BISHOP'S HOUSE AND BARN **C** SHERBURNE'S HOUSE AND MINERAL SPRING **E** S.W. MARSHALL'S HOUSE
- B** MRS. OTIS' HOUSE **D** CUMMINGS' HOUSE **F** GROUSE CAMP

SOURCES: 1872 GLO PLAT; BOWERS (1867); 1876 GLO PLAT; BLM PATENT RECORDS; R



required considerably less water; modern sheep breeds need only an average of 1-1/2 gallons a day per individual; under similar conditions, modern cattle require from 10 to 12 gallons a day (Sampson 1923:296). For the most part, ranchers who continued in the cattle business no longer relied solely on natural range feed for their herds; intensive cultivation of pasture for livestock feed and the beginnings of range-management techniques date to this period (Burcham 1961:146).

Documentary sources from this period indicate that cattle ranching, at least prior to the early 1870s, may have been the area's most important economic activity. It seems probable that both dairy and beef cattle were raised. The "fields" shown on Matthews' and Howard's properties on the GLO plats may have been used for hay production and/or improved pasture for dairy cattle. The wheat grown by some ranchers may have been used to fatten beef cattle which, at other times, were allowed to graze on the unimproved land that composed most of any given rancher's holdings. Indian corn was also grown, perhaps as food for the ubiquitous hogs.

County tax assessments for this period do not separate sheep and cattle holdings. The 1870 Federal Agricultural Census does not include any of the study area's enterprises but does show the following totals:

	Sheep	Milk Cows	Cattle
Cloverdale Township	200	93	94
Mendocino Township	3,657	394	604

The 1876 county assessments of several study-area landowners, however, showed equal investment in cattle and sheep. This pattern suggests that during the early 1870s, study-area ranchers, following the trend evident in the larger ranching community, discovered sheep ranching as a viable economic alternative to cattle ranching.

Use of timber resources in the study area is not documented for this period. Examination of the GLO survey plats, however, shows some correlation between the occurrence of marked redwood groves and dwellings. On the basis of this slight evidence, it is postulated that redwood lumber may have been used for local construction.

Census data show that the social units which occupied the study area at this time were mostly family groups, typically consisting of a married couple and their young children, the husband's unmarried younger brother, and, in the absence of other male family members, one or two farm laborers.

Most heads of households had come to California from the East or Midwest during the preceding 10 years. The places of birth of their children and younger siblings suggests that the movement of these settlers west was often sporadic, sometimes spread over several years or longer. By 1870, most heads of households were middle-aged; these individuals' wives were generally 5-10 years younger, which may partially account for the relative youth of their children. If the 1880 data are backdated 10 years for certain families which are known to have been present at the early period, at least one three-generation, extended family living in the same house can be identified. The Otis family would have consisted of a married couple and their two young sons, the head of household's younger brother, and their widowed mother. In addition, Mrs. Grissom, who appears to have been widowed by 1874, lived with her two sons, who ran their joint stock venture.

The number of large families in the area resulted in the creation, in 1871, of the Mendocino District school, just outside the Upper Dry Creek CHZ. During the first year, 57 students attended the school. Two years later, attendance peaked at 65 pupils (Greenwood et al. 1980b:122). The need for a second school, operating at the Rockpile Ranch, indicates a substantial and settled population of child-rearing families at this time.

A review of the economic and social status of the study-area landholders, inasmuch as these characteristics can be reconstructed from assessment, census, and limited biographical sources, creates an unexpected general profile of these pioneer-settlers and the nature of their land. The value of these individuals' personal property in most cases shows that they were "comfortably off" in the context of their time. As the overall worth of every landowner for whom data exist increased during this period (see table 3), it may be inferred that, rather than being marginal, at least part of the study area was productive grazing land. Some of the settlers themselves, although they may have arrived with limited, but adequate, resources, became financially successful and influential. James Samuels, for example, served as a member of the State Assembly. That both Samuels--who could also afford the luxury of a \$100 piano--and his neighbor Bishop employed domestic help, indicates their financial well-being. By the 1870s, these ranches were no longer remote, economically marginal enterprises; instead, they were articulated into regional and national political spheres. Ranchers participated in and influenced political decisions and

innovations within the ranching industry. Many of the cultural patterns identified in the modern sheep ranching complex 100 years later date from this time.

Of course, all of the early settlers were not successful. Some probably practiced adaptations unsuitable to the land. An early homesteader lacking the capital to invest in livestock or to amass the acreage to feed them successfully would have found it impossible to survive on his land without recourse to wage labor or some other form of income not connected with the agricultural potential of the land. The opening of this area to settlement probably encouraged some small, short-lived, labor-intensive farms.

This phase was marked by increased settlement and experimentation with various agricultural adaptations. The raising of sheep on large tracts of private and public land, in combination with a more intensive form of cattle ranching which developed out of the preceding phase, characterized the successful operations of this period.

Archaeological and extant sites which can be expected in connection with successful ranches include corrals, barns, sheds, other outbuildings, and campsites connected with ranching; improved homestead dwellings; dwellings for domestic and ranch help, probably including some Native Americans, and perhaps school houses. Sites pertaining to the unsuccessful settlers would be less visible, lacking the size and time depth of the former.

Third Phase, 1876-1890: Confirmation and Expansion

During this phase, early patentees expanded their holdings. Family members, or others, patented 160-acre blocks and then signed or sold the parcels over to the larger landholding. Land use continued to shift during this period from the grazing of cattle to sheep. Reliable sources on agricultural production and worth of personal property exist for many of the study-area families; these include county tax assessments for the years 1876, 1878, and 1880 and the 1880 Federal Agricultural Census. It should be noted that while the 1880 data from these two sources are fairly compatible on some items--such as number of sheep--their divergence in other areas, particularly acreage, is unexplainably confusing. In ad-

dition, the Federal value of land and improvements was substantially higher than the county's assessed value, probably indicating that they used different scales.

Following a discussion of each family for this period, comparisons are made among them based on the above documents. Families are discussed based on their locations on the roadways, first Bishop's road, then "Samuels'" road, and lastly the road along Dry Creek to Matthews' house. "Speculators" and other persons about whom little information was retrieved will be discussed at the end of the section.

Thompson's 1877 map of Sonoma County shows three buildings and what appears to be an orchard in T10N/R11W, Section 4, on "Mrs. Lucy Grissoms" property in the Dry Creek CHZ. Mrs. Grissom was listed as "owning" 1,000 acres. By that date, however, she appears to have made legal claim to only 160 acres--the amount shown on her 1878 county tax assessment. In November 1880, both of her sons filed patents for land under the 1820 Sales of Public Land Act. William's patent was for 145.69 acres in T10N/R12W, Section 1, and T10N/R11W, Section 6 (in the Rancheria Creek CHZ), while John's was for 160 acres of land bordering their original holding in Section 3, outside of the study area. They may have been purchasing and patenting other land outside of the area as well, as the 1880 agricultural census credits them with a total of 1,200 acres. This acreage might represent land claimed by use, however, rather than that held in legal possession.

In 1880, Laura Grissom, now 60, and her two sons, John Bryant, 32, and William Bryant, 29, were still living together; William's wife, Susan, 25, whom he married in 1877, also lived with the family. In November 1883, John Bryant married Eleanor Pritchett, aged 18, the daughter of his neighbor to the east. Both Bryants listed their occupation as "stockraiser" on the 1880 census.

Between 1878 and 1880, Mrs. Grissom and her sons shifted their emphasis from cattle to sheep. While their 1878 county tax assessment (table 4) listed a total of 45 cattle, calves, or cows and no sheep, the agricultural census for 1880 (table 5) listed only 20 milk cows, calves, and other cattle, and 1,000 sheep on hand. In 1880, the Grissom/Bryants had 20 tilled acres, 80 producing apple trees, and 80 acres in woodland and forest products which they did not claim to be using for firewood.

TABLE 4

COUNTY TAX ASSESSMENTS 1876-1880

	Acreage	Value of Land and Improvements	Value of Personal Property	Personal Property	Horses	Cows	Calves	Stock Cattle	Common Sheep	Lambs	Hogs	Poultry	Mules	Sheep Imported	Beef Cattle	Sheep Graded
<u>Bishop</u>																
1878	970 \$	\$1493	\$210	\$110	\$72	\$10	\$108	\$845	\$36	\$14	\$8	\$50	\$10	\$20		
1880	1000	2940	2545	160	80	15	60	1260 ²	60	20	15					
<u>Grissom/Bryant</u>																
1878	160	720	776	112	120	270	100	100		60	4					
1880	740	2130														
<u>Otis</u>																
1878	960	2150	1384	122			25	72	800	25	80	8				
1880	1491	2542	2035	175	75	30	40	870	100	100	10	10	40			
<u>Samuels</u>																
1876	1000	1500	2751	380	226	80	800	900	93	15	12					
1878	1120	2600	2220	325	100	40	180	1000	100	35	15					
1880	1120	3240	3302	320	100	15	50	1500	140	20	12					
<u>Seawell</u>	(1876 Seawell Bros. & Rupe; 1878 and 1880 Seawell Bros.)															
1876	1400	1700	2448	140	18	160	2000			50						
1878	1120	2640	1351	175	90	50	144	700	20	60	12					
1880	1120	2640	875	90	160		120	200	10	50	5					
<u>Sibbald</u>																
1876	1000	1400	2875	320	72	40	1750	450	75	25	8					
1878	920	2520	2967	247	72		450	1600	100	240	8					
1880	980	2460	4363	295	75	30	130	2250	225	30	8					

¹Total of columns to the right.²In 1880 the Board of Equalization raised the assessment on sheep by 50%; Bishop's value was therefore raised from \$1260 to \$1890. All assessed sheep values were later raised in this way.

TABLE 5
1880 FEDERAL AGRICULTURAL CENSUS

Name of Person who Conducts this Farm	Acres of Land			Farm Value			Fences		Labor			
	Tilled, including fallow and grass in rotation (whether pasture or meadow)	Permanent meadows, permanent pastures, orchards, vineyards	Woodland and forest	Other unimproved including old fields not growing wood	Of farm including land, fences and buildings	Of farming implements and machinery	Of livestock	Cost of building and repairing in 1879	Amounts paid for wages for farm labor during 1879, including value of board	Weeks hired labor in 1879 upon farm (and dairy) excluding housework	Estimated value of all farm productions (sold, consumed, or on hand) for 1879	
1. Bishop	11	800			\$10000	\$250	\$2700	\$150	\$200	16	\$3000	
2. Grisom & Sons	20	1100	80		10000	100	2300	100			2020	
3. Otis Bros.	20	1540	212		10000	350	2200	300	200	20	2200	
4. Samuels	25	1000	100		12000	100	3500	250	500	60	4600	
5. Sibbald	12	1200			12000	100	4600	300	700	80	6000	
6. Ferry		1000			20000	150	3000	300	200	40	2500	
7. Howard	50	743			10000	100	600	200	300	52	1000	
8. Matthews	20	340			3000	100	400	10			100 (?)	

TABLE 5 (continued)

	<u>Sheep</u>		<u>Swine</u>	<u>Poultry</u>		<u>Cereals</u>						<u>Potatoes</u>								
	Clip, spring 1880, shorn	Fleeces or to be shorn	Weight	Swine	Poultry	Eggs dropped	Barley	Acres	Bushels	Barley	Acres	Bushels	Wheat	Acres	Bushels	(no pulse, fiber, sugar or broom corn)	Potatoes	Irish	Acres	Bushels
1.	1269		4450	30	48	200														
2.	1080		3300	20	22	100														
3.	900		3000	20	18	70	5	150	10	200	20	1000	10	300						
4.	1600		5600	15	36	150					3	80								
5.	2200		7000	15	36	100														
6.	1000		4000	50	29	50														
7.	264		800	15	12	50	5	100										1	10	75
8.				20	50	100												1	1	50

TABLE 5 (continued)

Grasslands	Horses	Neat Cattle and their Products	Sheep
Acreeage 1879	Hay (tons)	Milch cows	Lambs dropped
Mown		Other	Sheep and lambs
Not mown		Calves dropped	Purchased
	Horses of all ages on hand	Cattle of all ages	Sold living
	Mules and asses of all ages	Slaughtered	Killed by dogs
		Died, strayed, stolen and not recovered	Died of disease
		Butter made on the Farm, 1879	Died of stress of weather

TABLE 5 (continued)

	<u>Orchards</u>				<u>Vineyards</u>				<u>Forest Products</u>		
	Apple 1879	Bearing trees	Bushels	PEACH Acres	Bearing trees	Bushels	Products of all kinds sold and consumed	Vineyards Acres	Forest Products Amount of wood cut in 1879	Cords	Value of all forest products sold or consumed in 1879
1.	2	80	60				\$ 50	1			
2.	1	20	10	1	50	30	50				
3.	1	75	25				30				
4.											
5.	3	300	100	1	100	200	100				\$40
6.	2	10		2	15		25	21	20	15	30
7.											
8.										20	40

The Bryants' continued emphasis on sheep raising is shown by an entry in a California business directory which listed both John and William as "wool growers" in Cloverdale (Polk 1890:196).

During this period, the Otis family nearly doubled the size of their holdings in the Upper Dry Creek CHZ. Each adult, except Joseph who had already patented his legal limit, filed a patent. Isaac filed for 160 acres under the 1820 Sales of Public Land Act in April 1882; Ann finalized a 160-acre homestead (40 acres of which were outside the CHZ) under the 1862 Homestead Act in May 1887; and Elizabeth patented 40 acres by cash sale, again under the 1820 Act, in June 1887. This brought the Otis family holdings within the study area up to 640 acres. These parcels, which were not contiguous, were purchased in such a way as to define core and peripheral areas of use, with Government land in between. In this way, the family could establish their area of use without the necessity of obtaining legal title to all the land which it contained. The 1880 county tax assessments on the cumulative family holdings showed them paying tax on property they were homesteading. The legal description of their acreage in that document corresponds to what they would have held legal title to at a later date. The family also patented land outside the study area in T11N/R12W, sections 34, 35, and 36, for a total of 1,491 acres.

In the 1880 census, Joseph Otis, aged 48, and Isaac, aged 39, each listed his occupation as farmer. Their mother, Ann, was then 64; Joseph and his wife, Elizabeth, 42, had three sons--Frederick, aged 16, Louis, 11, and Leonard, 1. Both older boys attended school. Although the men had described themselves as farmers, the family's emphasis seems to have been sheep raising from as early as 1878. In that year, the family's county tax assessment (table 4) listed 800 sheep and 11 calves and stock cattle; their 1880 census return indicated continuing efforts to increase the size of their sheep herd (table 5). The Otis family's produce listed on the 1880 agricultural census return represented the greatest diversity of crops harvested in the upper Dry Creek area at that period: hay, barley, Indian corn, wheat, apples, and peaches. Thus, although the family invested heavily in sheep during this period, they continued to grow crops.

The agricultural census listed the Otis brothers as owning 212 acres of woodland and forest. This acreage probably included their property in T11N/R12W, sections 34 and 35, where the 1872 GLO survey map noted redwood

trees growing on either bank of the Wheatfield Fork of the Gualala River. Although they probably used this land, the value of the wood was not included under "forest products" on their return.

A listing in an 1890 California directory showed the Otis family's continued interest in sheep. At this time, Joseph's son, Frederick, who would have been 26 years old, was listed as a "wool grower" in Cloverdale (Polk 1890:197).

Tennessee Bishop, the Otis family's western neighbor, also enlarged his landholdings during this period. In August 1881, Bishop patented 160 acres to the south and west of his original parcel under the 1820 Sales of Public Land Act. His son, John, purchased 160 acres to the west of the original parcel under the 1855 Bounty Grant Act. This patent was assigned to John by Joseph Galipher, who had received it as military compensation in June of 1882. Bishop's purchasing strategy differed from the scattered acreage pattern of the Otis family. All of Bishop's parcels were contiguous, forming, by 1880, a solid block of 960 acres. Of this acreage, 480 are situated within the CHZ; the remainder is to the south in Section 33.

Thompson's 1877 map of Sonoma County shows T.C. Bishop as the only occupant of T11N/R12W. In contrast to maps for the surrounding townships, on which section lines are marked, this one does not appear to be up to date with the most recent GLO surveys, indicating that Thompson may have compiled this portion of his map prior to 1875. Thompson's map shows Bishop claiming 2,500 acres of land, whereas his legal holdings amounted to only a fraction of that figure. After this discrepancy, the relationship between Bishop's actual holdings and that claimed on official documents remained stable and accurate from 1878 to 1888. In 1878, he claimed 960 acres, the exact amount which he later proved legal title to. Bishop's 1880 agricultural census record listed 800 acres and does not include the 160 acres patented by his son John.

By 1878, Bishop had changed his economic orientation from his earlier emphasis on cattle to sheep raising. His county tax assessment for that year listed 16 cows, calves, and other cattle and 845 sheep (table 4). Bishop's agricultural return from two years later showed still further investment in sheep, with 11 milk cows, calves, and other cattle, and 1,275 sheep (table 5). According to this return, Bishop harvested 15 tons of hay during the previous year. His only other producing acreage was an

enigmatic 1-acre vineyard, reportedly producing 8,000 pounds of grapes! This is the only mention found of a vineyard at Rockpile Ranch and, as Bishop's tax assessments do not show any other holdings in the county at this time, either the census is in error or Bishop had an incredibly productive, small vineyard at his ranch.

Sometime between 1880 and his death in 1888, Tennessee Bishop moved his place of residence to Santa Rosa, where he bought a house. Bishop's probate file listed his holdings of real property as lots and a residence in Santa Rosa (\$1,700), approximately 800 acres in T11N/R12W with improvements (\$10,000), and 480 acres in Tulare County (\$3,000). Although the total value of his real estate was significant (\$14,700), Bishop's other assets, aside from an insurance policy and a mutual society's policy, were valued at only \$1,080. It is possible that the drastic decline in the number of Bishop's livestock between that listed on his 1880 agricultural census return and in his possessions at his death (9 cattle, 40 sheep) may indicate that Bishop sold them off to raise capital for the purchase of his new home in Santa Rosa. Addresses of Bishop's heirs listed in the probate file suggest that no members of the family lived year-round at their "Mountain Ranch." The probate does, however, show that the family was still involved in some way with the ranch's operation, as Bishop's widow, Mary, declared a number of farming-associated implements and ranch furniture exempt from execution for use by the family.

In 1879, John Sibbald, the Bishops' nearest neighbor to the west, purchased 160 acres in T11N/R12W, Section 30. This land had originally been assigned to Emily Saunders under the Military Bounty Act of 1855. The new purchase brought the total of Sibbald's holdings in and immediately adjacent to the study area to 320 acres. On his 1880 tax assessment, however, Sibbald claimed ownership of nearly 1,000 acres in T11N/R12W and T11N/R13W. Certainly the number of animals Sibbald owned at this date would have needed this extensive range. A comparison between Sibbald's 1876 tax assessment and his 1880 assessment and agricultural census return reveals a dramatic change in his livestock investment. The 1876 record showed Sibbald as owning, among other animals, 175 stock cattle valued at \$1,750--his largest single investment. In addition, he owned 400 sheep and lambs, valued at only \$525. By 1880 Sibbald had increased his herd to 2,700 head of sheep and lambs (\$3,597) while reducing his stock cattle to

only 13 animals (\$130). The number and type of farmyard animals changed very little during this period (table 4). The 1880 agricultural census described Sibbald's holdings as containing 9 mown acres, which produced 10 tons of hay. Sibbald was unique among his neighbors in having no planted crops listed.

Their 1880 census return shows that the Sibbald family then included two children, Gertrude and Walter, aged 4 and 2, respectively. Living in the same household were three male laborers, one of whom, C. Thompson, was probably the son of a lower Dry Creek farmer. This indicates that some of the area's less well-off farmers may have been obliged to send their sons out as long-term laborers in order to bring in cash to the family. A 13-year-old boy and a 17-year-old girl were also listed as residing with the Sibbalds, although the relationship of these people to the Sibbalds is unclear. Theodoratus et al. (1979:96) suggested that the 10 Indians who were enumerated by the census after Sibbald lived on his ranch, although in a different dwelling. This group was composed of two middle-aged couples and their three sons, a male cousin, and two unrelated, elderly men. Five of the men were listed as laborers, and both women as "wash women." It is not known how the 80 weeks which, according to the 1880 agricultural census, Sibbald hired labor may have been divided among these five individuals, although clearly more help would have been needed at lambing and shearing time than during the rest of the year.

Moving back nearer to Cloverdale and traveling along the road from Cloverdale towards the hot springs, the Howards were the first study-area family to be encountered in the vicinity. The Howards lived near Cloverdale along Icaria Creek. Thompson's map of 1877 shows Alice Howard owning 320 acres in T11N/R11W, sections 24, 25, 35, and 36, and S.D. Howard, with 120 acres in T11N/R10W, sections 30 and 31, for a total of 440 acres, 240 of which are in the Dry Creek CHZ. The land on which the surveyor recorded their house in 1875 remained unclaimed, indicating that they may have been in the process of filing a homestead patent on that parcel.

The 1880 census listed Square Howard as a 55-year-old farmer; his Ohio-born wife, Alice, was 35, and their two young daughters were aged 6 and 2. A 55-year-old laborer from Missouri lived with them. Howard's farm production was more diversified than that of the upper Dry Creek sheep ranchers. Although some of his land was rugged and suitable only for sheep,

he also had agricultural land, as shown by his 50 acres tilled, fallow, or in rotation listed on the 1880 agricultural census (table 5). By that time, Howard was claiming ownership of approximately 800 acres. On this land he raised hay, barley, Indian corn, oats, and Irish potatoes. Howard had the largest orchard and vineyard within the CHZs, with 3 acres in apples, 1 in peaches, and 21 in grapes. Howard had less of an investment in livestock than many of the other study-area families. His 1880 census return listed six milk cows, calves, and other cattle, and 320 sheep. Considering his small herd, the 200 sheep lost due to stress of weather must have made a substantial decrease in his holdings. Howard claimed the products of the timber resources on his property in his census return--15 cords of wood--presumably sold for outside consumption. Howard's mixture of agricultural and mountainous property allowed him to engage in varied agricultural pursuits. This continued diversity is shown by his listing in an 1890 California directory as a "grape and wool grower" in Cloverdale (Polk 1890:197).

During this period, John Ferry increased his landholdings within the study area through purchasing land patented, at his request, by others. In December 1879, Jonathan Kazar assigned 120 acres purchased by land script under the Bounty Act of 1855 to Michael Grady of Oakland. Over a year prior to the finalization of this patent, in November of 1878, Grady sold this acreage to Ferry for \$200 (Sonoma County Deed Book 67:345). Later, in August 1881, Michael Grady patented 160 acres under the 1820 Sales of Public Land Act, which he sold in October 1886 to Ferry for \$300 (Book 102:360). At that time, Grady also sold another parcel, outside of the study area, to Ferry. Daniel Ryan also filed patents "at the request of John Ferry." In March and April of 1881, he purchased two 160-acre parcels under the 1820 Sales of Public Land Act. Each of these parcels had been sold for \$300 to John Ferry previous to the patents' being recorded--one parcel in January 1881 (Book 74:460) and one in December 1881 (Book 77:342). Peter McArdle of San Francisco patented 80 acres by cash sale in May of 1886. He had sold this land to Ferry prior to the finalization of his claim, in October of 1886, for \$200 (Book 102:357). By this time, Ferry owned 480 acres within the study area.

The 1880 census listed John Ferry, aged 42, as a sheep raiser living with his wife and 10 children (who ranged in age from 15 years to 2 months),

his stepfather, James "O'Connor," aged 65, and a 35-year-old hired laborer from Ireland. Ferry had a substantial investment in land and livestock: the value of his 1,000-acre ranch was the greatest of any in the study area; his agricultural census return for 1880 also listed the greatest number of milk cows, calves, and other cattle, at 45 (table 5). He was the only rancher to sell cattle that year. His production of 35 tons of hay in 1879 was probably related to this more intensive interest in cattle. Ferry also raised sheep, as was indicated by the 1,200 sheep on hand listed on his 1880 return. His other agricultural endeavors were minimal, restricted to a 1-acre potato patch. Ferry reported the use of forest products in the 1880 census, listing 20 cords of wood at a value of \$40. Ferry continued his operation in sheep raising and was listed in an 1890 California directory as a "wool grower" in Cloverdale (Polk 1890:197).

The means of access to Samuels' ranch at this period is unclear. The 1872 GLO map shows a road branching off of Bishop's road which goes in the general vicinity. Thompson's 1877 map, however, indicated that access might have been had via the Cloverdale-to-hot springs road, which Thompson showed following "Dry Creek," actually Galloway Creek, and a tributary to the northwest corner of T11N/R12W.

By 1878, Samuels had increased his legal landholdings to 1,120 acres, 560 acres of which lie within the study area. Samuels patented a 160-acre homestead claim under the 1862 Homestead Act, which was recorded in November of 1880. He also purchased adjacent land patented by others, including 160 acres patented by Jesus Mendoza in 1874 and 160 acres patented by John Ambrouse in 1875.

The Samuels family's 1880 census return shows the household to be composed of James, now 49, his wife, Sarah, 50, and their youngest daughter, Bell (Isabella), who was listed as "at school." Samuels' occupation was listed as "stockraiser," as it had been in 1870. Unlike his neighbor and son-in-law, John Sibbald, Samuels had no laborers present in his household in 1880. In the previous year, however, he had hired labor for a total of 60 work weeks (table 5).

A change in Samuels' economic emphasis is clear when his 1876 county tax assessment is compared with that from 1880 and with details from the agricultural census of that year. In 1876, Samuels' total investment in cattle, both dairy and stock, was \$1,106 (112 animals); in the same year,

he owned 725 sheep and lambs at a value of \$993. By 1880, Samuels' 17 cattle were valued at \$165, while his sheep and lambs were valued at \$1,640 (table 4). During this period, Samuels' stock of hogs, poultry, and horses remained almost constant. Samuels' products, as listed on his 1880 census return, included hay, Indian corn, and apples (table 5).

Some clue to the terminal date of Samuels' residence in the study area is provided by annotations on successive GLO survey plats. The map of 1872 shows "James Samuels House" in T11N/R12W, Section 7, whereas the 1889 plat indicates "James Samuels Cabin." This subtle difference may simply be the result of dissimilar terminology on the part of the two surveyors, although it is noteworthy that the later surveyor, Carlton, did use "house" elsewhere on his map. It is, therefore, possible that by 1889, Samuels no longer lived in his original house, and that it had fallen into sufficient disrepair that the appellation "cabin" was more appropriate at that time.

Thomas Fraser's claim was located 4 miles to the east of Samuels', on the Cloverdale-to-hot springs road between Ferry to the south and Matthews to the north. The land was patented in 1889 under the Homestead Act of 1862; it consisted of 160 acres in T11N/R12W, sections 11 and 14, of which three-quarters are located in the present study area. Although Fraser did not gain legal title to the land until 1889--which he did, presumably, in order to sell it to John Ferry in the following year--there is evidence that he resided on the land at least as early as 1874. In that year, GLO surveyor Chapman had recorded a fence separating Matthews' land from Fraser's holdings in T11N/R12W section. At least part of Fraser's land patent appears to have been in bottomland along Dry Creek, thus he may have engaged in subsistence farming. His 1880 census listing described the 59-year-old Fraser as a single, disabled laborer, born in Scotland and living on his own. At the time of his sale to Ferry, Fraser would have been 69 years old. Fraser died in 1893 and was buried in Cloverdale, where he had apparently moved after selling his land. As a lone male, living on relatively good agricultural land and yet describing himself as a laborer, Fraser is somewhat of an enigma.

Although they did not own land in the study area until 1892, George J. Smith and his family were listed in the 1880 census as neighbors of Thomas Fraser. On the assumption that the enumerator recorded residents

in order along the road, the Smith family's residence would have been between Fraser and Matthews. It is probable, then, that their house was situated on the 40-acre parcel later patented by Smith in Section 14. Several factors indicate that the Smiths were neither year-round residents on this land nor did they hold it for agricultural purposes. First, 40 acres would have been an uneconomical size for a ranch or farm, considering the nature of the terrain. In addition, Smith eventually chose to purchase the land under the Sale of Public Land Act, which did not require permanent residence. Most conclusively, in his 1892 patent application, Smith listed his residence as San Francisco. The Smiths' 1880 census return described the family as consisting of George Smith, a disabled painter, aged 38, his wife, Mary, 35, and their four children, aged between 2 and 14 years. If the above interpretation is correct, this young family may represent an early recorded example of land purchased in the study area for purely recreational purposes.

The 1874 GLO map noted a trail along Dry Creek to the Matthews' house. By 1889, the GLO map described this route as a "wagon road" which ran from Matthews' bottomland in Section 14 to what was described as "Macclery's house and field" in Section 11. At this time, Matthews had yet to lay legal claim to any land within the study area; his dealings to the north were not researched.

The 1880 census listed George Matthews as a 53-year-old farmer; his wife, Ann, was 41. They had three sons attending school; George, aged 12, Henry, 11, and John, 9. Two boarders--a 35-year-old Irishman and a 60-year-old Englishman--lived with the family; they were listed as laborers. On the census, the relationship of hired help to the head of household was usually designated as "at work"; as Matthews listed no money paid in wages for that year on his agricultural census return, it can be assumed that these men worked elsewhere and paid the Matthews for their board. Ann Matthews died shortly after the census enumeration, probably in 1880; the youngest son, John, died in 1890.

The agricultural census showed Matthews' farm to be smaller in size (360 acres) and value (\$3,000) than those of the other study-area residents. The value of his livestock was listed as \$400. The census manuscript is unclear, but it appears that he owned 60 milch cows, calves, and other cattle. Alone among these ranchers, Matthews owned no sheep at this time.

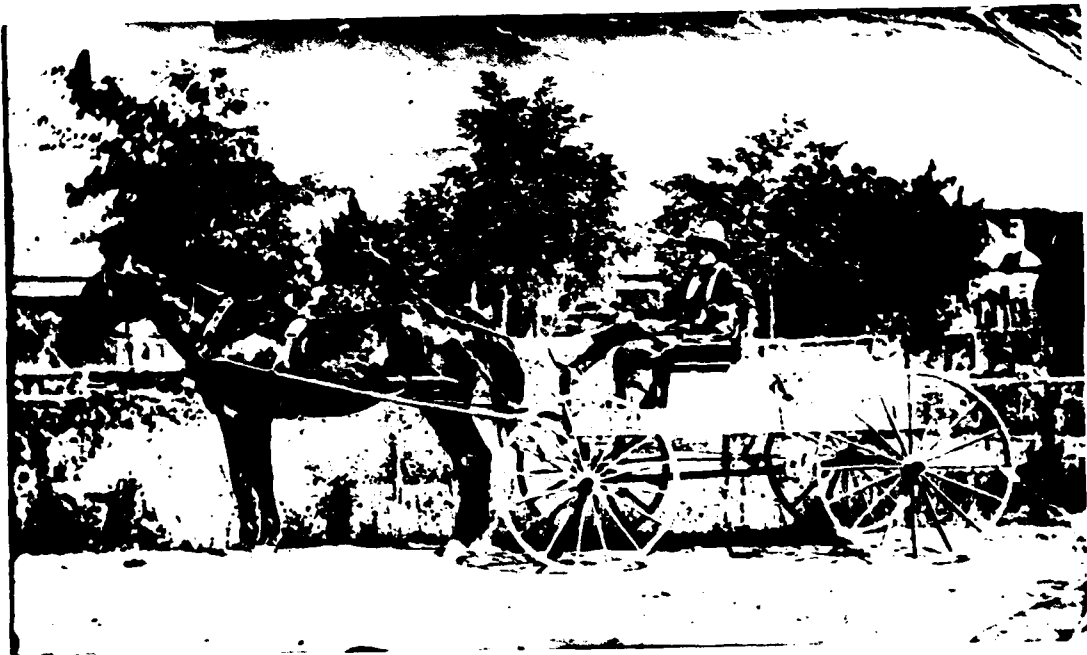
He did own the usual swine and poultry, and he grew hay, while his orchard products were near the subsistence level (table 5). Matthews reported the use of his "forest products" indicating that he disposed of 20 cords of wood at a value of \$40.

At this time, the Matthews family appears to have lacked the capital to purchase large amounts of land and to stock it with animals. They existed apparently as subsistence farmers, taking in boarders and making ends meet by utilizing whatever resources were available. George Matthews, Jr., hunted deer to earn his college tuition. During one summer prior to 1885, he shipped 63 bucks to city market. From 1885 to 1887, George Jr. attended St. Mary's College; in 1887 he returned home to help his sick father with the ranch. Upon his return, George and some prominent San Francisco businessmen organized the Elk Range Gun Club. As time went on, this club attracted many notables of the state and celebrities of national repute to the ranch (Finley 1937:328-329). In the early days, it must have also helped to pay the bills.

Less information--suggestive of non-participation within the study area--was retrieved for the following five patentees. The first of these, James W. Seawell, does not appear to have retained his study-area holdings for very long. In 1874, the GLO surveyor noted "Jos. Sewell's He" in T10N/R12W, Section 10, outside the study area. In November of 1876, James Seawell, Joseph's brother, patented 160 acres by cash purchase under the 1820 Sales of Public Land Act, 40 acres of which are within the Rancheria Creek CHZ in Section 11. James Seawell's family was to become very important in northern California. His father was Justice of the Peace in Santa Rosa, and his son, an important doctor in Healdsburg. They were also related to a Supreme Court Justice in San Francisco and to a Senator from Ukiah.

The 1876 county tax assessment and Thompson's map of 1877 show the Seawells as having been in partnership with Rupe, while both the 1878 and 1880 tax assessments are for the Seawell brothers only, indicating a severance of their previous arrangement with Rupe. The 1876 tax assessment listed 1,400 acres of land, a heavy investment in cows, calves, and stock at \$2,178, and no investment in sheep. In 1878, the Seawell brothers were assessed on 1,120 acres, with 29 cows, calves, and stock, and

PLATE 4



Member of the Elk Range Gun Club (founded in 1887), in Cloverdale en route to Matthews' ranch in Upper Dry Creek. Sign on cart reads "The Bums-Retreat."

700 sheep; in 1880, on the same acreage, value of cows, calves, and stock cattle was reported, but only 200 sheep. The brothers appear to have changed their operation by 1880, for they were assessed on \$800 worth of business fixtures and listed \$1,200 unsecured credits (table 4). James Seawell eventually became a butcher in Healdsburg, and the brothers' tax assessments for this period may have reflected the beginnings of that business.

When the Seawell brothers and Rupe terminated their business relationship, Rupe, or perhaps his heirs, may have obtained the study-area land which they eventually sold. That the brothers did not own the property in T10N/R12W is suggested by their tax assessments--in 1878 and 1880, all of their holdings were in T10N/R11W. Unfortunately, in 1876, when it is believed they did own the land in T10N/R12W, the tax assessment did not list property by legal description as it did in later years.

In 1885, William A. Heath patented 160 acres in T11N/R12W, Section 19, between the holdings of Sibbald and Samuels. The transaction was made under the terms of the 1820 Sales of Public Land Act, which required cash payment rather than personal residence on the land. It is not known whether Heath ever lived on the property. On his 1880 census return, Heath was listed as a resident of Mendocino Township, but the dwelling number assigned to him shows that he was not a neighbor of any study-area landowners. An 1878 county tax assessment credited Heath with owning a lot in Healdsburg. The census described Heath as a 31-year-old, unemployed painter from New Hampshire. Heath's 32-year-old wife, Mary, was also from New England. The ages and places of birth of the couple's two pre-teenage children suggest that the family had been in California for 3 to 10 years.

Patentee William Hood may have been the son of Santa Rosa jeweler and watchmaker George Hood, Sr. In 1888, William received title to 160 acres in T11N/R12W, Section 22, under the 1820 Sales of Public Land Act. Hood's method of land acquisition, biographic information (Munro-Fraser 1880:647), and lack of census and assessment data indicate that he did not live on this land.

J.S. Cummings, the patentee in 1876 of 160 acres in T11N/R12W, Section 16, was probably the husband of Amelia A. Cummings, who, two years before, had gained title by cash purchase to an adjacent quarter section.

Since the Cummings' 1870 census return recorded his wife's name as Abigail, the preceding suggested association of these individuals must be considered speculative. That the Cummings family neither appears on the Mendocino Township assessment roll later than 1872 nor on the 1880 census indicates that they were no longer local residents.

Few data are available concerning Richard Marshall, who in 1880 patented 160 acres in T10N/R11W, Section 9, adjacent to the holdings of Grissom, by land script. It seems unlikely, on the basis of census data, that Richard Marshall was a son of S.W. Marshall, who had patented land elsewhere in the study area, although they may have been related in some other way. His absence from mention in local assessment and census records indicates that Richard Marshall had not been a local resident prior to this purchase.

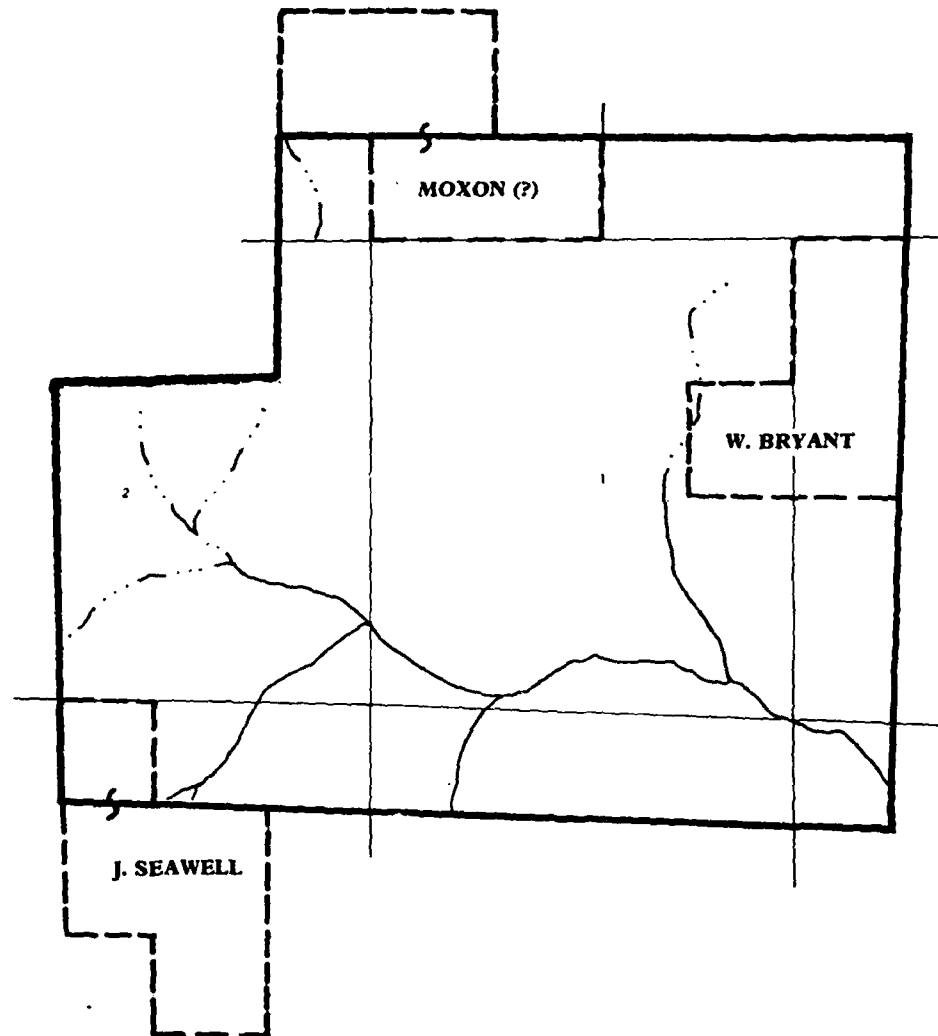
Summary: 1876-1890

Although the land-tenure maps for this period (maps 15-17) show an increase from the previous period in the amount of land held privately, there were still substantial areas of public land. Suitable property was used for grazing and hunting by local ranchers, regardless of Government ownership.

During the 1860s and 1870s, the demands of agriculture put fertile valley land into crop production and forced ranchers to locate in areas not generally suitable for cultivation. Pastoralism shifted to the woodland ranges of the foothills, and then to the plateau and mountainous portions of California, where it settled and became stable. By 1880, California's rangelands were fully stocked (Burcham 1961:146). This trend can be seen in the study area, where the quantity of livestock would have commanded the use of all available rangeland. Also, no new ranching operations began during this period, suggesting that although large areas of Government land remained unclaimed, these had value only when used in combination with the private holdings.

During this period, study-area occupants increased the size of their holdings. Some expansion strategies can be inferred from the relationship between the individuals' holdings, natural features, and the relative

MAP 15



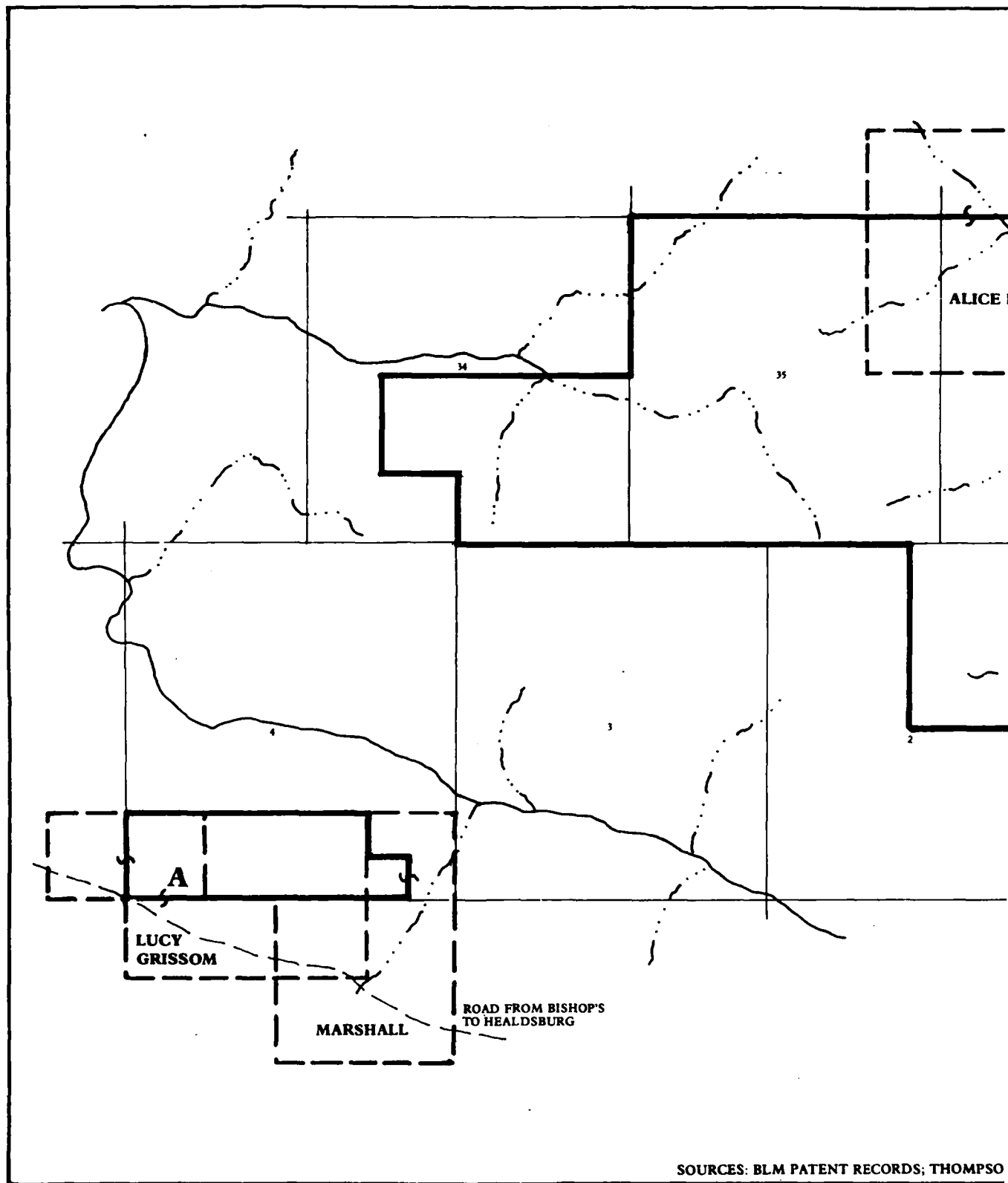
RANCHERIA CREEK CRITICAL HABITAT ZONE

LAND TENURE 1876 TO 1890



0 1000 2000 FEET
0 250 500 METERS

SOURCES: BLM PATENT RECORDS; COUNTY TAX ASSESSMENT ROLLS



SOURCES: BLM PATENT RECORDS; THOMPSON

MAP 16

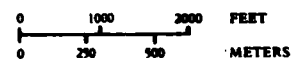
DRY CREEK
CANDIDATE/CRITICAL
HABITAT ZONE

LAND TENURE
1876 TO 1890

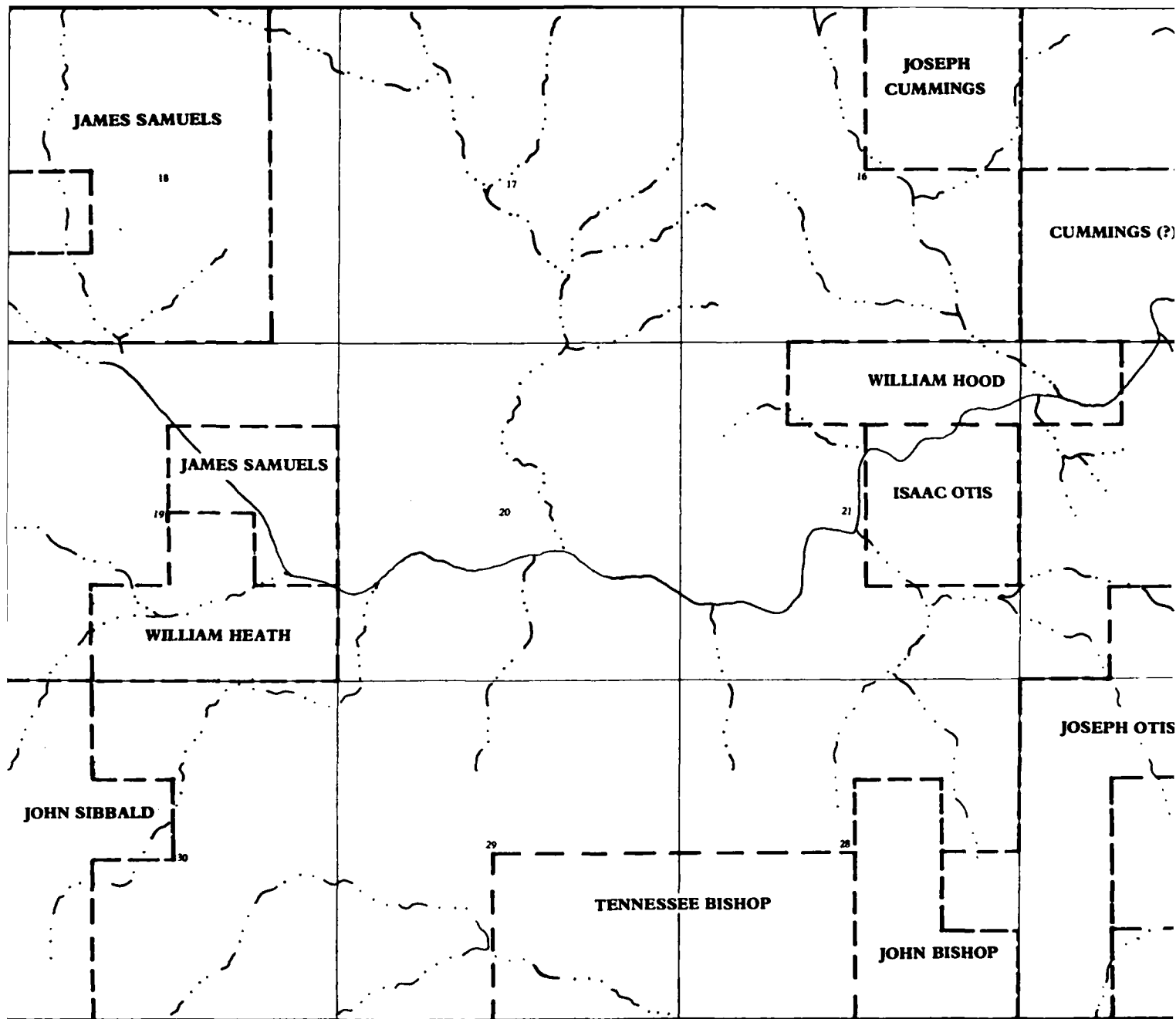
A THREE STRUCTURES AND
A POSSIBLE ORCHARD

— — — ROAD

NOTE: HOWARD'S 'HOLDINGS' OUTSIDE SECTION 36
NOT PATENTED DURING THIS PERIOD.
TITLE CHAIN NOT ESTABLISHED FOR
SECTION 36.

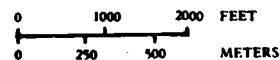
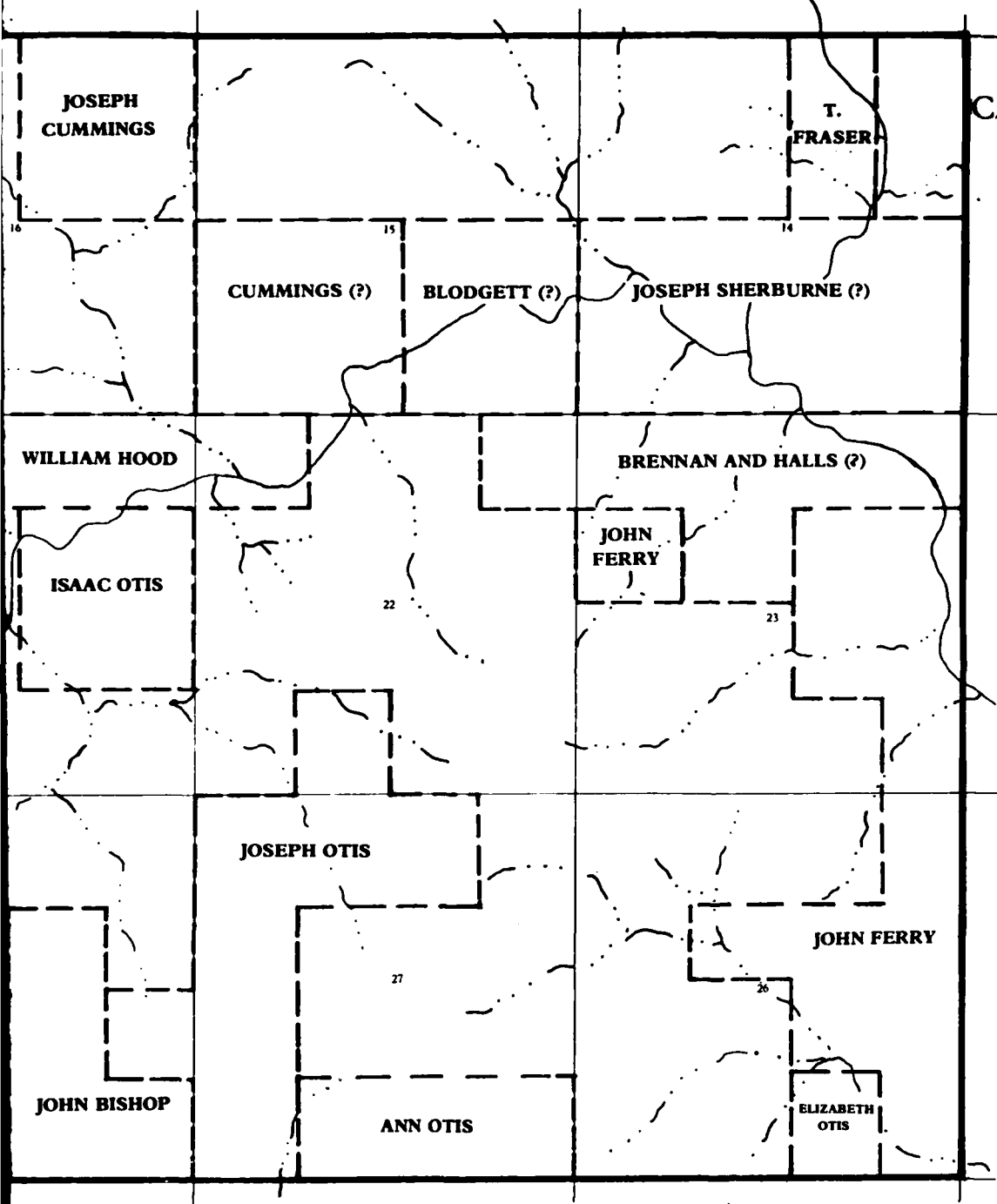


SOURCES: BLM PATENT RECORDS; THOMPSON (1877); COUNTY TAX ASSESSMENT ROLLS



UPPER DRY CREEK
CANDIDATE HABITAT
ZONE

LAND TENURE
1876 TO 1890



position of others' land. Consistent with the expansion of livestock raising onto the semi-arid rangeland, access to water seems to have been an important factor in land acquisition. This need was met either by obtaining an entire stretch of creek frontage contiguous with the owners' original holdings, or by getting a single parcel with water frontage which was a short distance ($\frac{1}{4}$ to $\frac{1}{2}$ mile) from the major holding, with Government land between the two. By the latter method, access to the scarce resource was assured with minimal capital outlay.

County tax assessments for the period 1876 to 1880 were located for Bishop, Grissom/Bryant, Otis, Samuels, Seawell, and Sibbald (table 4). The 1880 Federal Agricultural Census enumerated the holdings of Bishop, Grissom/Bryant, Otis, Samuels, Sibbald, Ferry, Howard, and Matthews (table 5). The correlation between the 1880 assessment and the 1880 census is very close on many points, indicating the reliability of these documents and providing the basis for a comparison among families listed on one or both documents.

All of the study-area ranchers owned their property. In fact, owner-occupancy, as opposed to renting or share-cropping, typified the residency pattern for this period: Of the 320 farms listed in the Mendocino and Cloverdale townships on the 1880 census, 281 were owner-occupied. The average amount of land held by study-area ranchers was about 1,000 acres. The Otis brothers claimed the largest tract--over 1,700 acres--while Matthews, who owned no sheep at this time, claimed only 360 acres. Most study-area land was used for grazing. Only a small percentage was tilled and planted in hay, Indian corn, oats, barley, potatoes, and fruit, probably mainly for consumption by family and livestock. Corn was an important component of most early ranches, as it could be grown both easily and cheaply. Thus, the first operation on a new ranch often was to get the corn planted. While wheat served as the principal bread cereal elsewhere, corn, because of its cheapness and food value, was:

...the poor man's food, the pioneer's subsistence, the slaves' usual handout, the feed of hogs, cattle, poultry and horses. Corn pone, corn bread or johnny cake, corn mush, hominy, and corn fritters were standard items in the farmers' diet, and also became important ingredients in frontier literature (Gates 1960:169).

Oats were used for horses or, in combination with corn, for cattle and sheep, while barley was used for human and animal consumption (Gates 1960:172-173).

Howard, with his greater percentage of agricultural land, was an exception to the general pattern. He grew a variety and quantity of crops and maintained a vineyard which, when viewed in combination with his directory listing as "grape grower," strongly indicates that he grew cash crops. The Otis brothers, with their large family labor force, rate second in amount of land under cultivation, while Sibbald, with his emphasis on livestock, had the least amount of cultivated land and grew only hay.

Most study-area ranchers had substantial investments in land and livestock. The average farm value in the 1880 census was around \$11,000, with Ferry's ranking most valuable at \$20,000, and Matthews' the least at \$3,000; the latter's land was \$7,000 less than the next least valuable. Value may have been assessed by the quality of the land, for although the Otises claimed the greatest acreage, their assessment was below the average.

Average livestock value was about \$2,500. Sibbald, at \$4,600, had the greatest investment, while Matthews, at \$400, and Howard, at \$600, had the smallest. Of those ranchers heavily involved in sheep raising, the Otis brothers had the smallest investment, \$2,200 in livestock. Investment in sheep required less capital per animal than did investment in cattle. Sheep also needed less water, fewer fences, and seemed to do better on the rugged rangeland of the upper Dry Creek area. Considerable buying and selling of sheep was reported on the 1880 agricultural census. The main problem with sheep raising at this time appears to have been losses due to "stress of weather." Thus, in one year, Bishop lost 600 animals and was left with 1,275 sheep "on hand." The Otis brothers reported a less severe loss of 175 animals, with 900 left "on hand." Ferry's land may have been more sheltered than his neighbors, for he reportedly lost only 30 animals out of 1,200 "on hand"--or perhaps the enumerator meant to write 300, a figure more in keeping with the losses reported by others. Although there was a column on the census for sheep lost to dogs, none of the study-area ranchers reported such losses. Some breed improvement appears to have been attempted during this period. The 1878 county tax assessment showed that Bishop, Otis, Samuels, and Sibbald each had a few expensive "imported sheep."

The Grissom/Bryants and George Matthews were the only study-area residents who did not hire any outside help in 1879. Bishop, Ferry, and Otis had male family members who could help with the work and hired only seasonal help, spending only \$200 each. Samuels, with one daughter, and Sibbald, with two small children, hired laborers on a more regular basis; these men spent \$500 and \$700 respectively. These two individuals also appear to have had more capital to work with than did their neighbors, and they could perhaps afford to hire more help. Howard seems to have had one permanent laborer, to whom he paid a total of \$300 over the year.

In summary, most study-area ranchers owned similar portions of land upon which they raised sheep. Two exceptions were Matthews, who appears to have been a subsistence farmer at this date, and Howard, who diversified. The sheep ranchers also grew hay for winter fodder and perhaps other crops. Most farm products seem to have been for home use; the barnyard contained swine, poultry, and milk cows, also primarily for the families' own use. Large families of limited means shouldered most of the burden of the ranch on their own, while those who were financially better off or who had smaller families employed outside help.

The Sonoma County sheep population peaked during this period. The 1880 census listed 156,554 sheep in the county (Department of the Interior 1883:841), while the 1890 census showed less than half that number--74,604 (Department of the Interior 1895:239). At this time, there are indications of a concomitantly decreasing sheep population in the study area. The center of the sheep industry was apparently moving elsewhere--the 1880 census showed that approximately 180,000 sheep had been shipped out of the state for breeding purposes. The study-area ranchers were representative of the northern California sheep operatives at their peak, whom Wentworth described as follows:

The story of sheep in northern California was not the story of large operations. Hundreds of sheepmen were engaged in the business from 1860 onward, and collectively they formed the biggest reservoir of production in the whole United States. In the two decades preceding 1880 they brought in a mass of purebred rams that revolutionized the Spanish type prevailing there and provided animals on which the modern sheep industry in Montana, Idaho, Nevada, and Western Utah and Arizona was based (1948:202).

The human population of the study area also peaked and began its decline during this phase. Enrollment at the Mendocino District School showed a steady downturn (Greenwood et al. 1980b:158), as the ranks of the first generation of children were not replaced; few, if any, new young families moved into the area.

This decline of population and production would have led to the abandonment of some dwellings and livestock-oriented features. Extant and archaeological features relating to some of the families and activities outlined in the previous phases can be expected to date from this period of decreased use and emigration.

Fourth Phase, 1891-1914: Corporate Investment

This phase proved more difficult to research than the previous one, since only one Federal census, that for 1900, and no agricultural censuses are available for this period. The only county tax assessment which was found merely listed real property by legal description, and not personal property or livestock. Land speculation increased during this phase, as did tenant farming--two factors which complicate record searches. Additional information about this period could probably be obtained through oral history and newspaper review.

In this section, an attempt is made to complete the family histories of the study-area residents identified in the previous phases, followed by a general discussion of land use and settlement during the fourth phase. This period was characterized by the rise of large, corporate landholdings. The primary use of the land remained as rangeland for sheep, although recreational use came to play an increasingly important role.

Lucy Grissom died prior to 1893; in that year the GLO surveyor noted "J. Bryants he" on the land that the Grissom family had homesteaded in the 1870s. By 1893, there was a road branching off from the Healdsburg-to-Bishop road labelled "road from Bryants to Cloverdale." The 1900 census described John as a 51-year-old farmer; he and his wife, 33, then had three daughters, aged 15, 12, and 11. His brother, William, was also listed as a farmer; he and his wife had two daughters, aged 19 and 7. William no longer lived with his brother but owned his own farm nearby. By this

time, William Bryant had sold his study-area holdings in T10N/R12W, Section 1, and T10N/R11W, Section 6, to R.R. Patten. Both Bryants were listed as "farmers" in Kingsbury's 1905 directory: John in Cozzens and Geyserville, and William in Healdsburg. The original Bryant/Grissom place was sold in 1913.

Charles Kelly finalized a homestead patent in June of 1904 on 160 acres in T11N/R11W, Section 31, along the road to Bishops between Bryant and Otis. The 1862 Homestead Act required five years residence, which Kelly was shown serving on the 1900 census. The document enumerated Kelly, his wife, and their three-month-old son on the parcel. Charles was 31, born in Iowa, and listed his occupation as farmer. His 31-year-old wife had left Canada, her birthplace, at the age of 16. At this time, Kelly was listed as a "farmer" in Cozzens in a Sonoma County directory (Kingsbury 1905:247).

The Otis family, Kelly's neighbors, continued to patent land during this phase. The third generation now claimed Government land: Leonard patented 160 acres by cash sale in March of 1905, and Frederick finalized a 120-acre homestead claim in July of 1904. The Otis family's enterprises continued to be diverse. For example, in 1891 James Abshire granted Isaac Otis "the right to peel, gather and appropriate tan bark" on 40 acres in T11N/R12W, Section 36 (Theodoratus et al. 1979:289). Isaac presumably sold this bark in town. Fred Otis purchased 17 goats at 88¢ a piece at the sale of James Pritchett's estate in 1891, adding a new variety of barnyard animal to their stock (Greenwood et al. 1980a:106).

By 1900, both of the Otis brothers had died. Elizabeth, age 63, was a widow living with her two sons, Frederick, 36, and Louis 21. The census listed her as a farmer and as the head of household. Evidently, her son Leonard no longer lived at home but still resided in the area. The 1905 Sonoma County directory listed Leonard as a farmer at Cozzens and Cloverdale, while Frederick was listed as a farmer at Cozzens. The Otises sold some of their property to Casper Ornbaun's La Roca Monte Rancho around 1913. Frederick Otis, however, continued to patent homestead claims within the study area and maintained his landholdings until at least 1934 (Peugh 1934).

Although Tennessee Bishop died in 1888, the final distribution of his property did not occur until 1894. Mary Bishop et al. appear to have kept the ranch intact until some time just after 1900. The 1900 census suggests that no one lived on the property at that time. The parcel appears to have passed through a couple of absentee owners prior to its purchase around 1911 by La Roca Monte Rancho.

Following the Otis family, the census taker stopped at the Throop residence on the road from Healdsburg to the coast, just north of the Bishops' ranch. Throop, a 42-year-old farmer from Indiana, lived here with his 45-year-old wife, Mary, and six of her 10 children from a previous marriage. Throop and two of his stepsons, Walter and Edward Roussan, each filed 160-acre homestead claims which were finalized in 1906, 1908, and 1905, respectively. Thus, by 1908, the Throop family owned 480 acres in T11N/R12W, sections 28, 29, and 30, land which they had claimed free from purchase price by use and improvements.

Charles Throop was listed as a farmer in Cozzens in a 1905 Sonoma County directory (Kingsbury 1905:247). At this time, "Troops" place at Rockpile reportedly served as a rural post office, where mail could be picked up or sent out (Theodoratus et al. 1979:85). There are also indications that the public school first envisioned by T.C. Bishop was still in operation at this time. Throop/Roussan sold their land to Ornbaur's La Roca Monte Rancho in 1912 (Recorder's Township Book 11/12:220).

Property transactions involving lands held by Samuels and Sibbald are confusing during this period. Apparently, Sibbald either purchased or inherited his father-in-law's property, for in 1894 he sold it to Almon T. Johnson (Book of Deeds 155:189). Perhaps Johnson died before he had paid for the land, as his property was dispersed in 1899-1900, and Sibbald again owned the land. Reynolds' and Proctor's 1897 map shows George Williams owning Sibbald's original patent in Section 30. No information was found on Williams; his land may also have been repossessed, for in 1911 Sibbald sold his original Section 30 property and Samuels' original ranch to the La Roca Monte Rancho (Recorder's Township Book 11/12:41).

By 1900, Sibbald had moved to Santa Rosa and no longer lived at the ranch. Sibbald also had landholdings in Nevada. He maintained an interest in sheep raising and sometimes advised a neighboring landholder, O.R. Baldwin.

Following the Throops, the census enumerator visited the Richard Nobles family, who were caretaking at "Samuels' ranch." Richard was 51 years old and born in Arkansas, while his wife, 34, and two pre-teenage sons listed their birthplaces as California. Mrs. Nobles' 18-year-old brother lived with them and worked as a farm laborer. Richard "Yellard" Nobles was reportedly the caretaker on Sibbald's property in 1904 (Baldwin 1941:55); he appears to have been living on Samuel's old holdings in T11N/R12W, Section 18.

The next household on the census may have been related to the one just described; perhaps this family was caretaking another portion of Sibbald's large holdings. Neither family owned its own farm, giving support to this notion. Rodney Lowrey, 41, and his wife Etta, 29, lived with Joseph Nobles, 26, his wife, 24, and their one-month-old baby. All five persons listed California as their place of birth; the men described themselves as farmers.

Although sheep ranching still reigned as the primary source of income at the turn of the century, tourism became more important to some study-area residents and to the area in general. The Northwestern Pacific Railroad put out a yearly publication entitled Vacation, which

furnishes information so that you can arrange to stop at a hotel or private home in some town, at a mineral spring resort, rusticate on some farm, or enjoy the camp life so dear to the Californian (Northwestern Pacific Railroad 1909).

One of the places to "rusticate" was "Samuels' Ranch," described as follows:

Good country home; splendid deer hunting and trout fishing. Open for guests from July 15 till September 15. Can accomodate 4. Adults \$7., children under 10 half price. Address: R.Y. Nobles. (Northwestern Pacific Railroad 1909).

On Reynolds' and Proctor's 1897 map, Square D. Howard was shown as owning 320 acres in T11N/R11W, sections 25 and 26, north of the Dry Creek CHZ; the land in section 35 which his wife was shown as owning in 1877 on Thompson's map was no longer represented as part of their holdings. As the Section 35 land had yet to be patented in 1877, the later map is probably accurate. Square died in 1899. His wife, two grown daughters, and a farm laborer were listed on the farm in the 1900 census. Both daughters, age 26 and 22, were listed as "at school." As Delle Howard

taught at the Mendocino District school in 1895 and 1896 (Greenwood et al. 1980b:158), this enumeration may indicate their status as teachers rather than as pupils. The length of time the Howards continued to run the farm was not determined. They eventually sold the property to Alfred Brown, who still owned it in 1934 (Peugh 1934).

East of the Howards in Section 34, the 1893 GLO survey maps indicated "Riordans house" and "trail to Riordans house" near Brush Creek. John Reardon finalized a homestead patent on 160 acres, including the house site, in June of 1895. Perhaps this was more of a recreational cabin than a homestead in earnest, for no biographical information was recovered on Reardon; he sold the parcel shortly after he achieved ownership. In 1897, Frank Yordi owned this piece of land (Reynolds and Proctor 1897). Yordi lived with his parents and worked as a salesman in his father's store. The family may have used the cabin as a weekend retreat, but this property was probably mainly purchased for its investment potential. Theodoratus et al. (1979) and Greenwood et al. (1980b) contain further biographical and financial details on the Yordi family.

John Ferry owned 1,960 acres by 1898; at that time, he defaulted on a mortgage and his property was sold by public auction. Patrick and Ann Smith, who had called in the mortgage, purchased Ferry's ranch for \$13,071.92. In 1902, the Smiths conveyed the property to their sons, Frank and William, who retained ownership until 1919 (Theodoratus et al. 1979: Appendix B2). During this phase, sheep raising continued to be the dominant orientation on the acreage.

By 1897, George Hood, Sr., had purchased 1,200 acres of land within the Upper Dry Creek CHZ. He consolidated parcels originally patented by Amelia and Joseph Cummings, Edward and Joseph Sherburne, and George Blodgett. It is assumed that this was the George Hood of Santa Rosa who ran a successful jewelry business and dealt extensively in the buying and selling of land. Hood's Hot Springs were located on the property, and the family probably vacationed in the area to enjoy these springs and the fine hunting and fishing. These 1,200 acres, plus son William's 160-acre parcel, were included in an 8,000-acre ranch bought by Orville D. Baldwin in 1903 for his son, Orville R., who kept the property until 1922. Baldwin's extensive holdings, which consolidated seven ranches, are shown in Greenwood et al. (1980b:figure 18).

PLATE 5



Top: Matthews' relatives departing from Cloverdale for his
Upper Dry Creek Ranch, circa 1910.

Bottom: At Matthews' ranch; George Matthews, Jr., second from right.

Baldwin started out in 1904 with 500 cattle, mainly Hereford (Baldwin 1941:45); he grew hay and one year planted 30 acres in red oats. In 1907, Baldwin experimented by purchasing a few hundred sheep to see which did better on his land, sheep or cattle. He decided that "sheep were better payers," so in 1908 he sold all but 200 of his cattle and increased his herd of sheep to 3,000 (Baldwin 1941:83).

Hood's Hot Springs, now within Baldwin's land, were not commercialized at this date. A 1915 USGS report described them as follows:

Warm water issues at Hoods Hot Springs in the canyon of Dry Creek, near the north edge of Sonoma County. The springs are of small flow and have been used only locally for bathing (Waring 1915:82).

A consultant who often visited the hot springs before 1914 did not remember anyone living there. Local people used the springs, one hot and one cold, when they wished (field data 1981).

When George Matthews, Sr., died in 1899, he still had not claimed legal title to the bottomland in T11N/R12W, Section 14, which he had been using for 25 years. One of George Matthews, Jr.'s first acts after his father's death was to buy out the other two heirs and to work towards establishing legal title to a large amount of property. He did this partly through having family members and friends patent land for him (field data 1981; Recorder's Township Book 11/12). By 1914, Matthews owned approximately 650 acres in T11N/R12W, evidently outside the CHZ.

After his father's death, George Matthews began to raise sheep. Signifying his new orientation, Matthews, then 33, listed his occupation as sheep raiser on his 1900 census return; living with him was a 16-year-old Irish boy, who listed his occupation as sheep herder. Matthews started with a herd of 350 on 800 acres and, by 1937, had 3,500 sheep and a 10,000 acre ranch. According to his biographer, Matthews was one of the few men to make a "tremendous success" at sheep raising (Finley 1937:327-329). One of the reasons which contributed to his success was his knowledge of controlled burning techniques. George Matthews reportedly was the top authority in the state on controlled burning, and ranchers from as far away as Oregon sought his advice.

Another reason for Matthews' success may have been his relationship with the influential members of his hunting club, including many important

doctors, lawyers, and businessmen, from Santa Rosa and Marin County. Many of them had hunting cabins near Matthews' house, while some had cabins, probably built as homestead claims, in the canyons to the north (field data). At least one member of Matthews' club, James Rollo Leppo, patented land within the study area. Between 1912 and 1914, Leppo filed three separate patents under the 1820 Sale of Public Land Act for a total of 282 acres. Leppo's family had come west from Ohio; his father ran a mercantile business serving for a time as Assistant District Attorney (Guinn 1904:1104; Toumey 1926:812; Finley 1937:295-296).

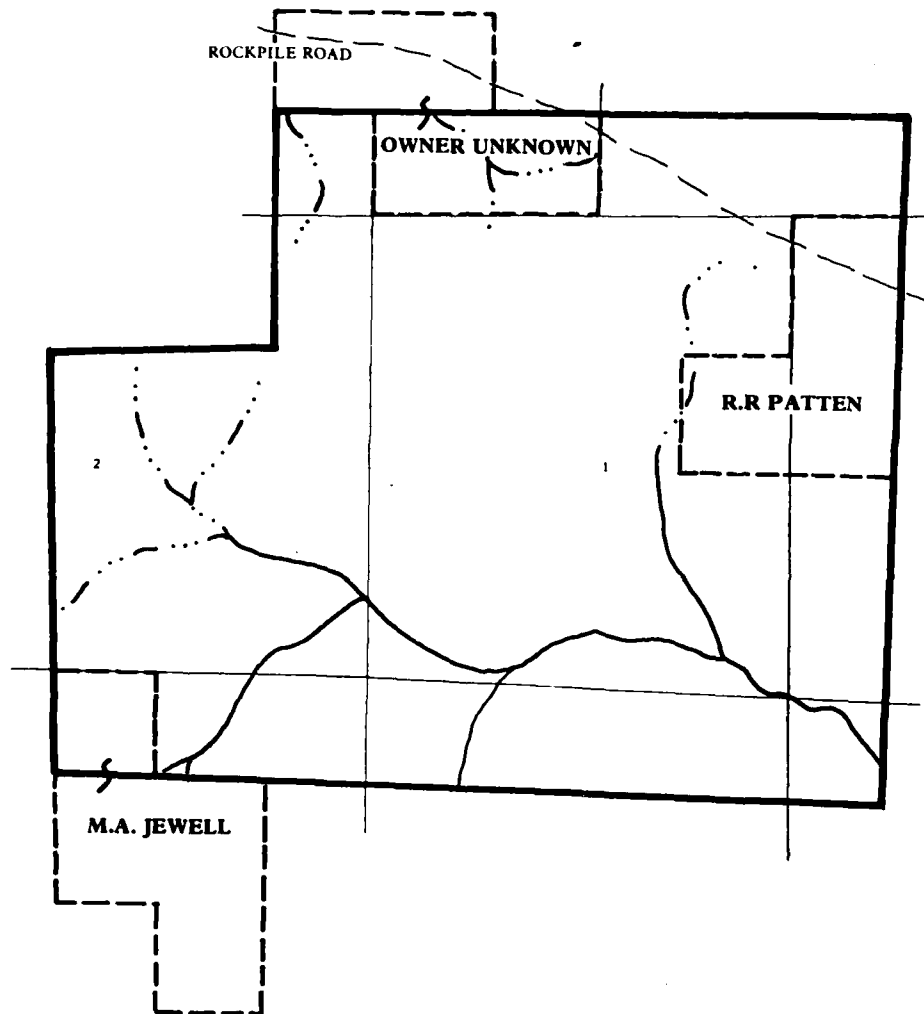
Matthews also ran a kind of summer camp for the Cochranes, relatives on his mother's side from Marin County. From as early as 1901, members of the Cochrane family spent summers at the ranch (letter from M. Cochrane to G. Matthews, June 1901). Some families camped in tents, while others had cabins scattered about the property. George supplied the tents, picnic tables, straw mattresses and cots, and, for some families, even a cow. This must have been a substantial gathering, for there were 36 first cousins alone, their parents, and non-related families who summered at the ranch. No one ever paid Matthews to stay on his ranch (field data); perhaps the land which they had patented for him was seen as a fair exchange, and he reportedly enjoyed the summer get-togethers as much as they did. In 1918, at the age of 50, George Matthews married Anne Egan. When their children were old enough to go to school in 1926, he sold part of his ranch and bought property near Cloverdale so that they might obtain an education.

The end of this phase is marked by the large land purchases of the La Roca Monte Rancho, a corporation organized by Casper Ornbaun. Casper's father had settled in Ornbaun Valley, Mendocino County, in 1856, where he and his wife raised 14 children. Casper went to law school and obtained a degree. He practiced law in San Francisco, served as Assistant District Attorney, and organized the La Roca Monte Rancho around 1910. At one time, this corporation owned 20,000 acres, on which it ran 6,000 ewes (Ornbaun 1956:4). Two sons of Richard Nobles, Sibbald's caretaker, were in partnership with Ornbaun. Harmon Nobles and his wife lived at Rockpile Ranch and managed the livestock from the "early days" until 1935. John Nobles was part of the company until his death in 1936. At that time, Casper's son, Frank, took over the running of the ranch (field data).

PLATE 6

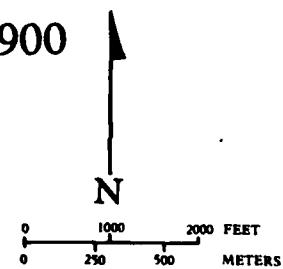


Vacationing at Matthews' ranch in Upper Dry Creek, circa 1910.

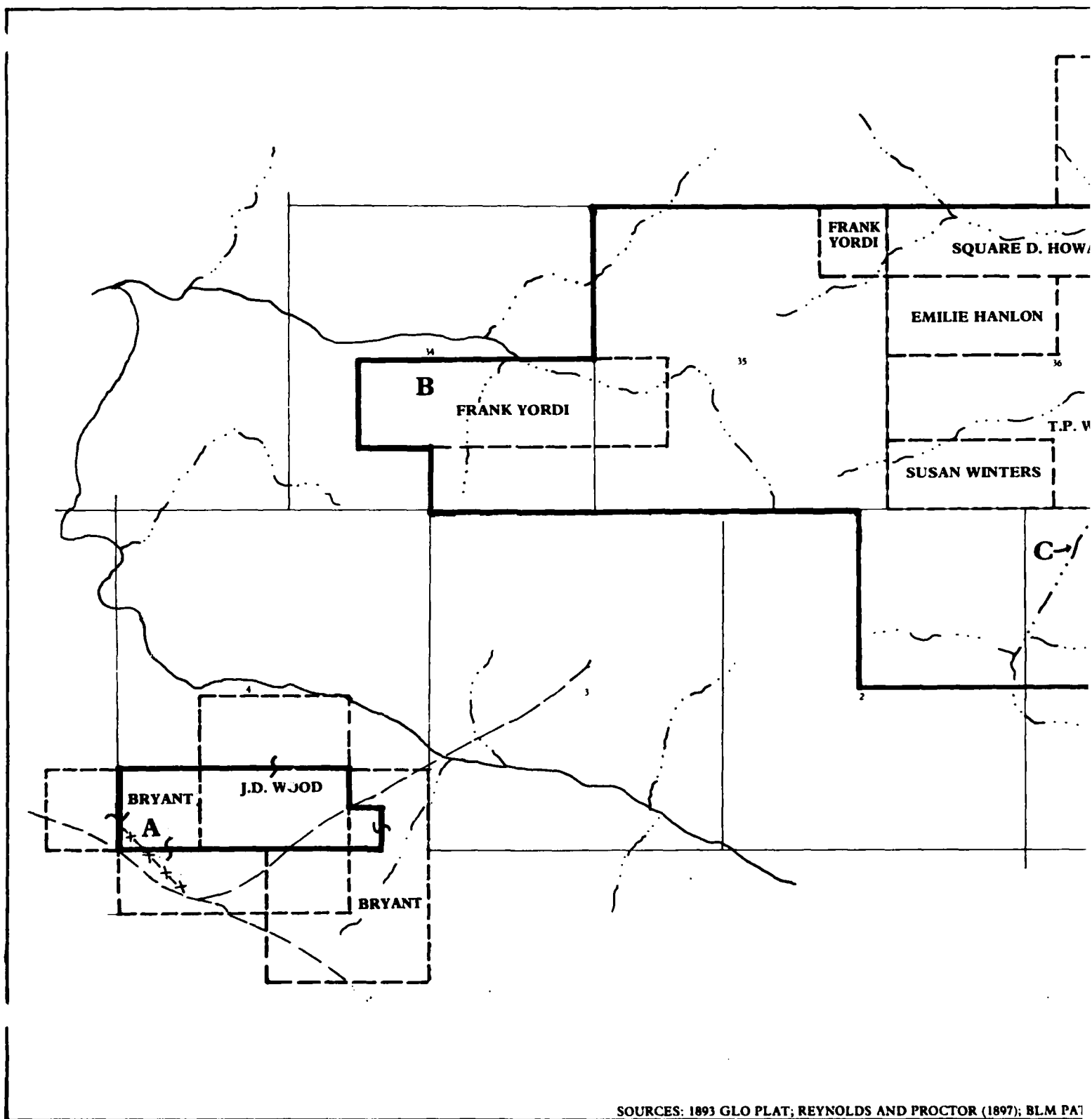


RANCHERIA CREEK CRITICAL HABITAT ZONE
LAND TENURE 1891 TO 1900

— — — ROAD



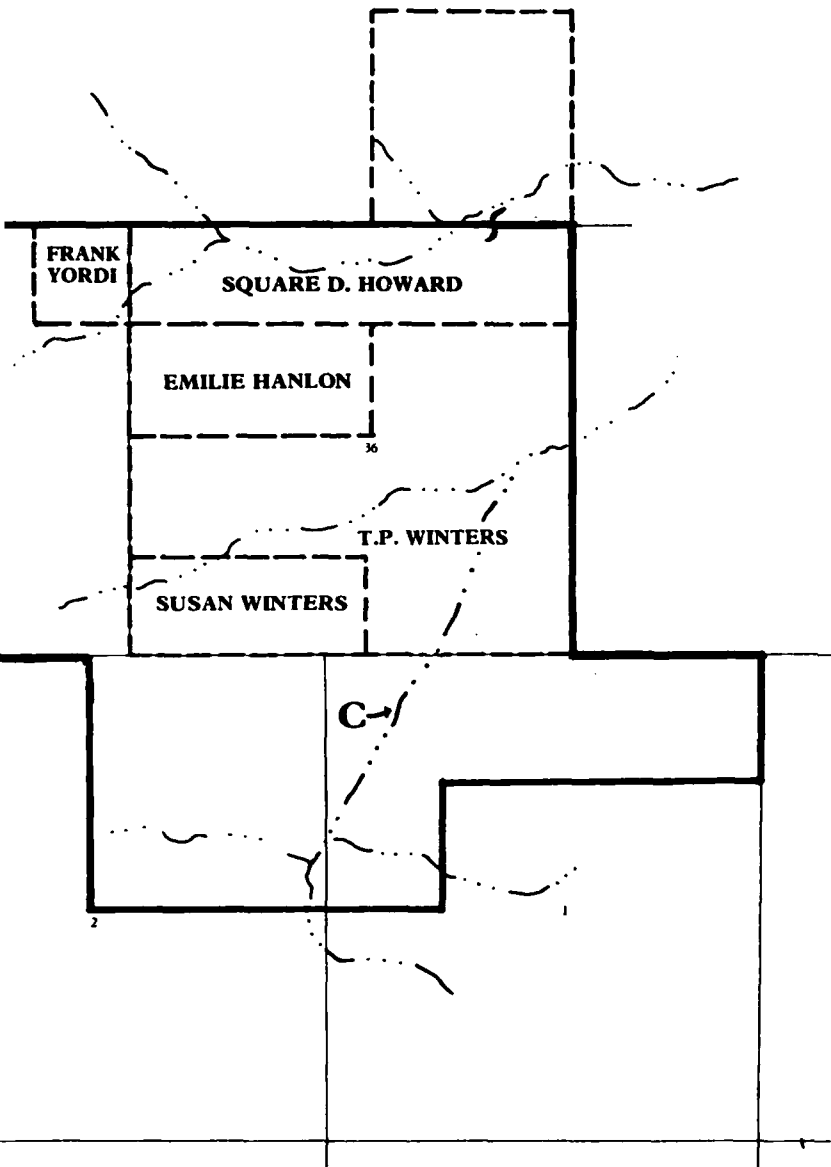
SOURCES: REYNOLDS AND PROCTOR (1897); BLM PATENT RECORDS



MAP 19

DRY CREEK
CANDIDATE/CRITICAL
HABITAT ZONE

LAND TENURE
1891 TO 1900



- A BRYANT'S HOUSE
- B REARDON'S HOUSE
- C ALDERGLEN CREEK

— — ROAD
x—x—x FENCE

NOTE: OCCUPANTS OF SECTION 36 TAKEN FROM
REYNOLDS AND PROCTOR ONLY.



0 1000 2000 FEET
0 250 500 METERS

18
ALMON T. JOHNSON

M. HANLEY

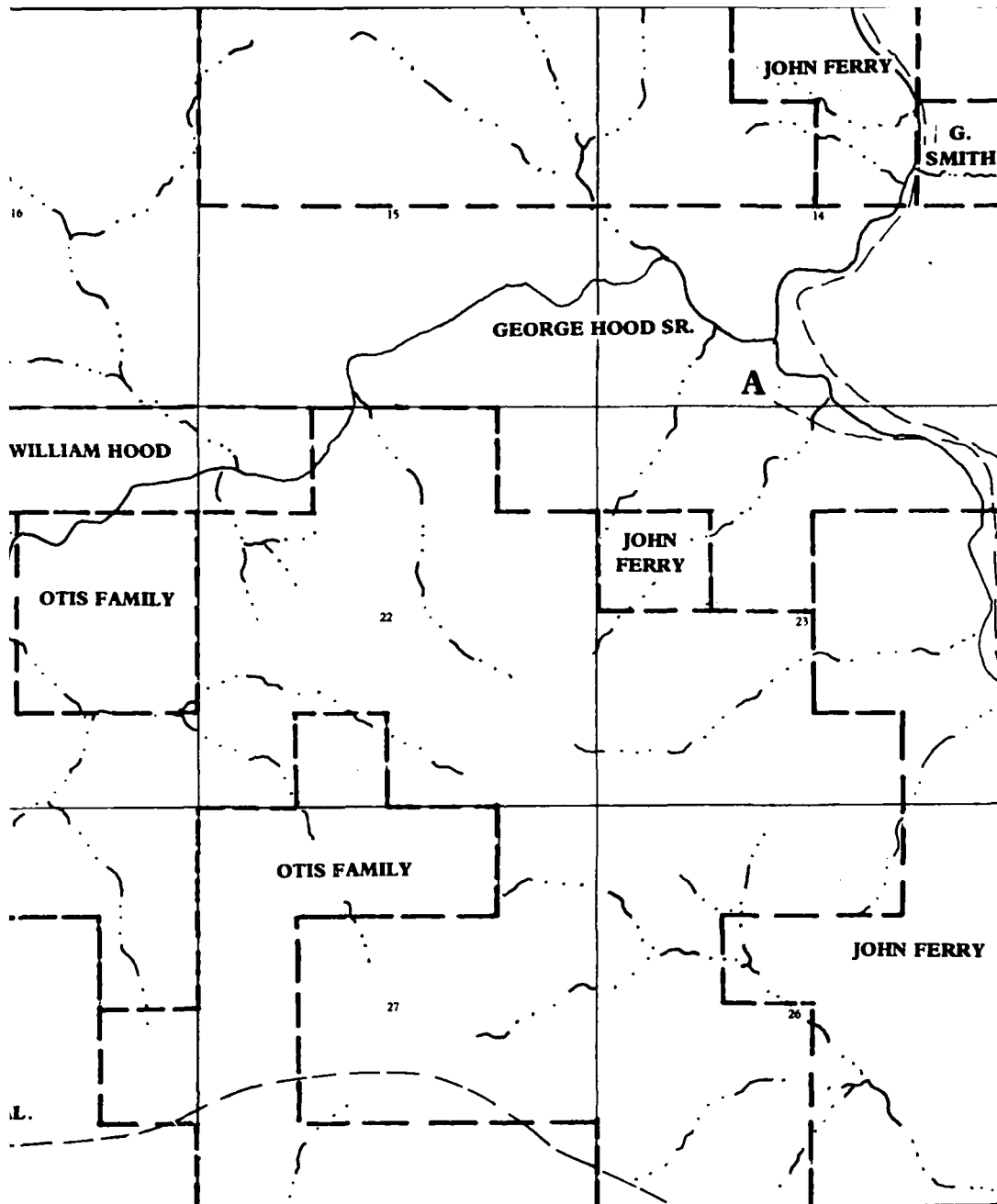
WILLIAM HOOD

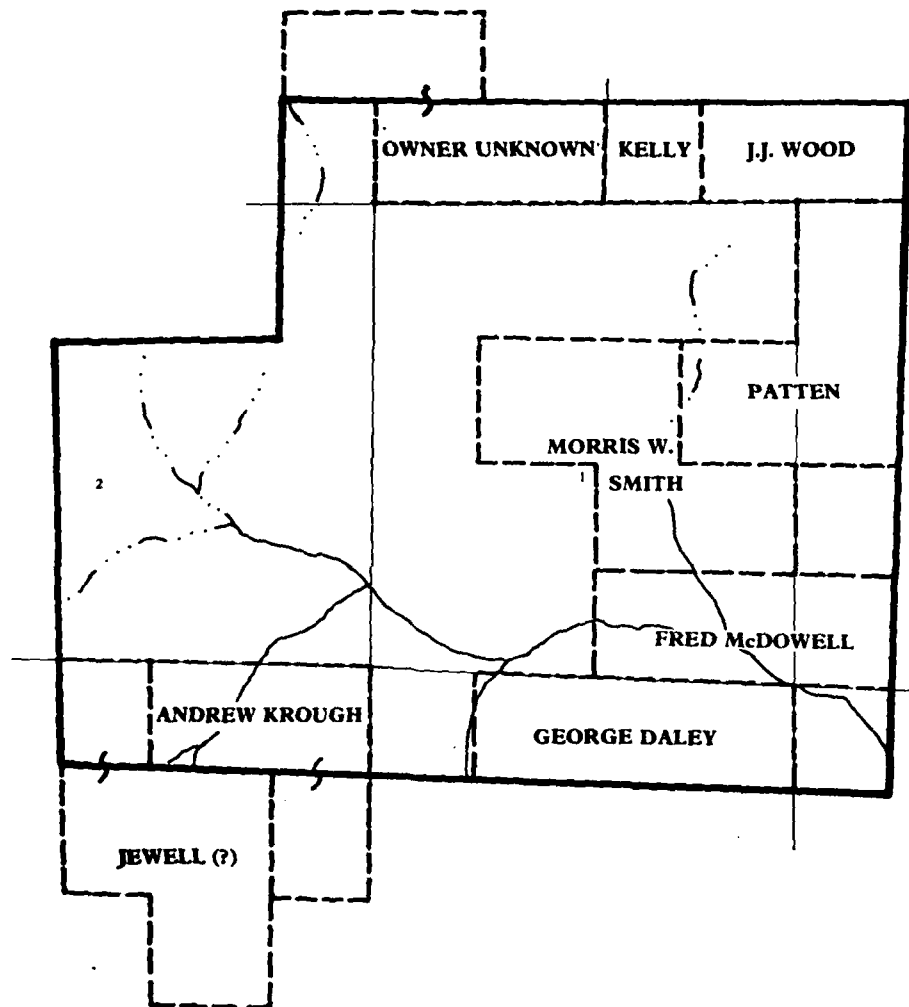
OTIS FAMILY

GEORGE R.
WILLIAMS

OTIS FAMIL

MARY BISHOP ET AL.

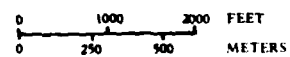




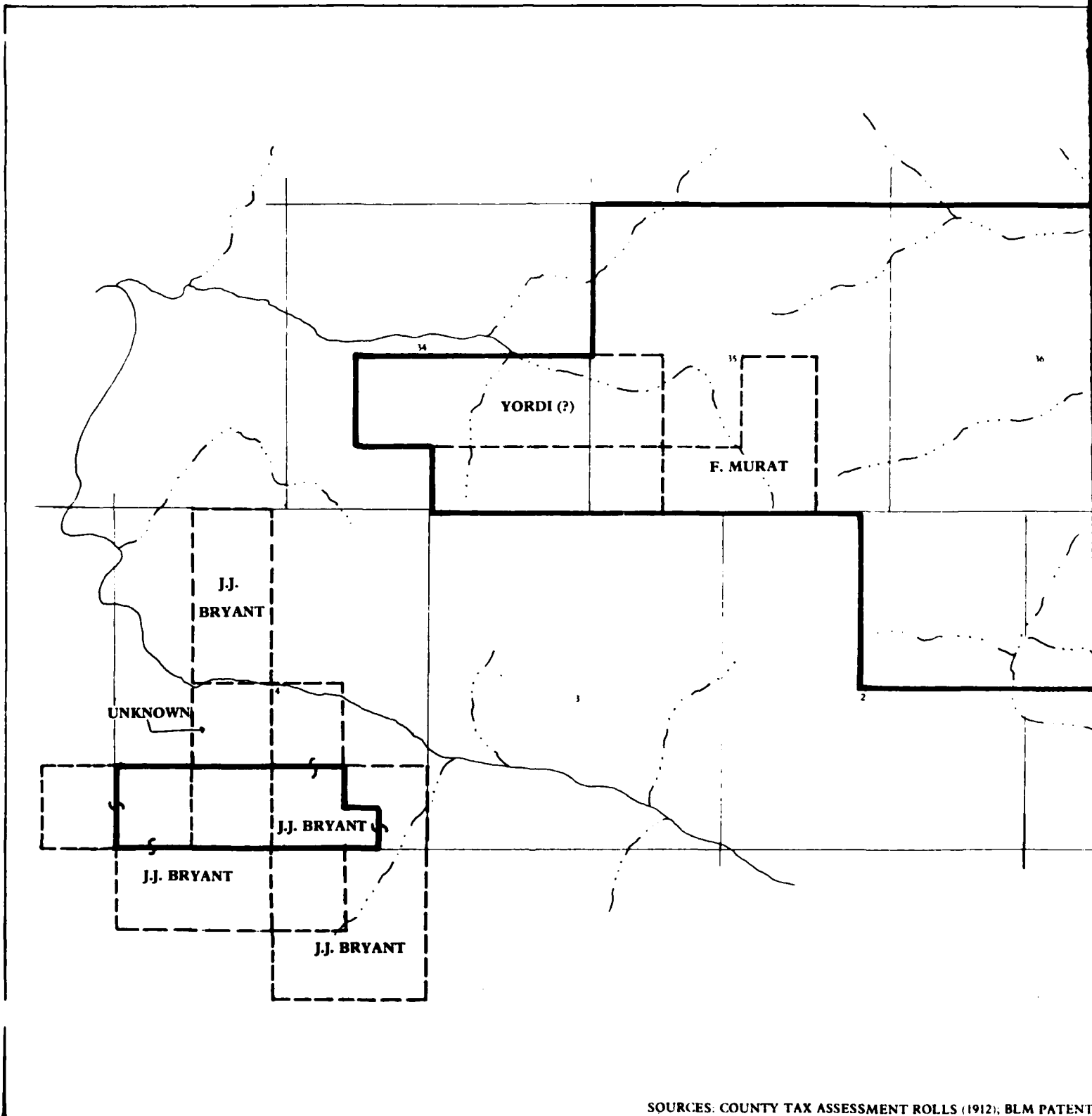
RANCHERIA CREEK CRITICAL HABITAT ZONE

LAND TENURE
1912

NOTE: DALEY, SMITH, AND WOOD WERE THE ONLY
ASSESSED LANDOWNERS IN THIS UNIT IN 1912.



SOURCES: COUNTY TAX ASSESSMENT ROLLS (1912); BLM PATENT RECORDS



SOURCES: COUNTY TAX ASSESSMENT ROLLS (1912); BLM PATENT

MAP 22

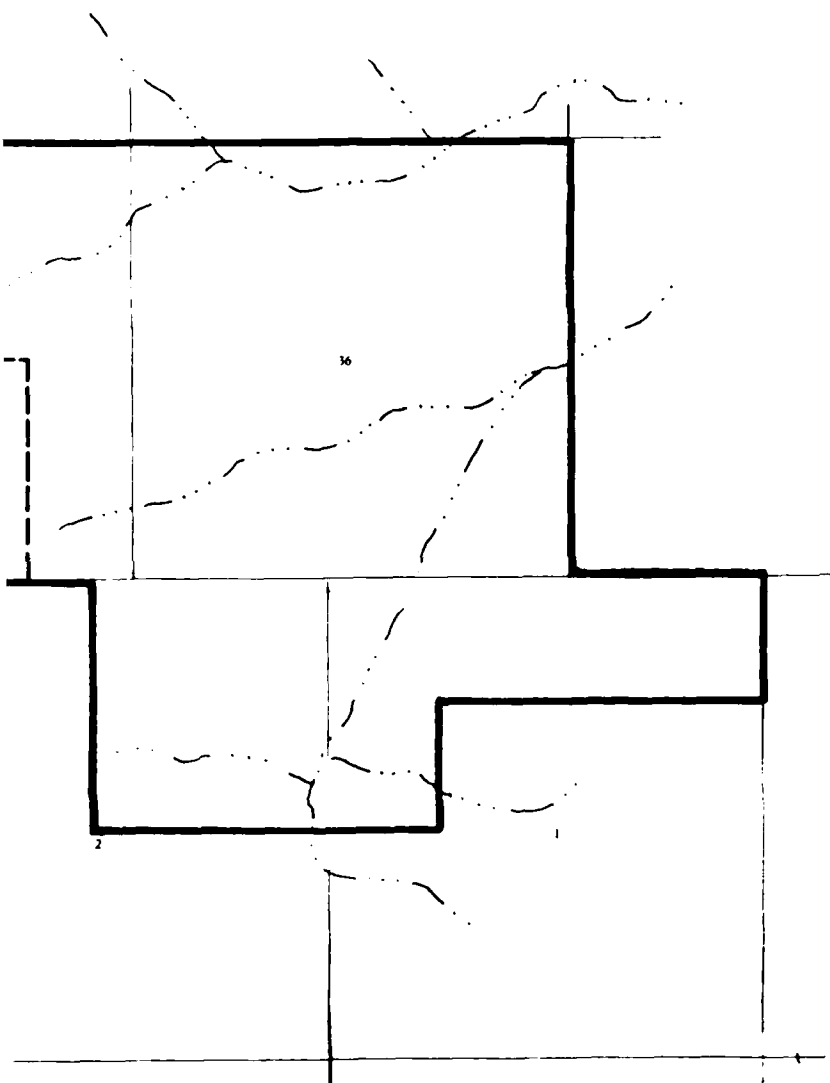
DRY CREEK
CANDIDATE/CRITICAL
HABITAT ZONE

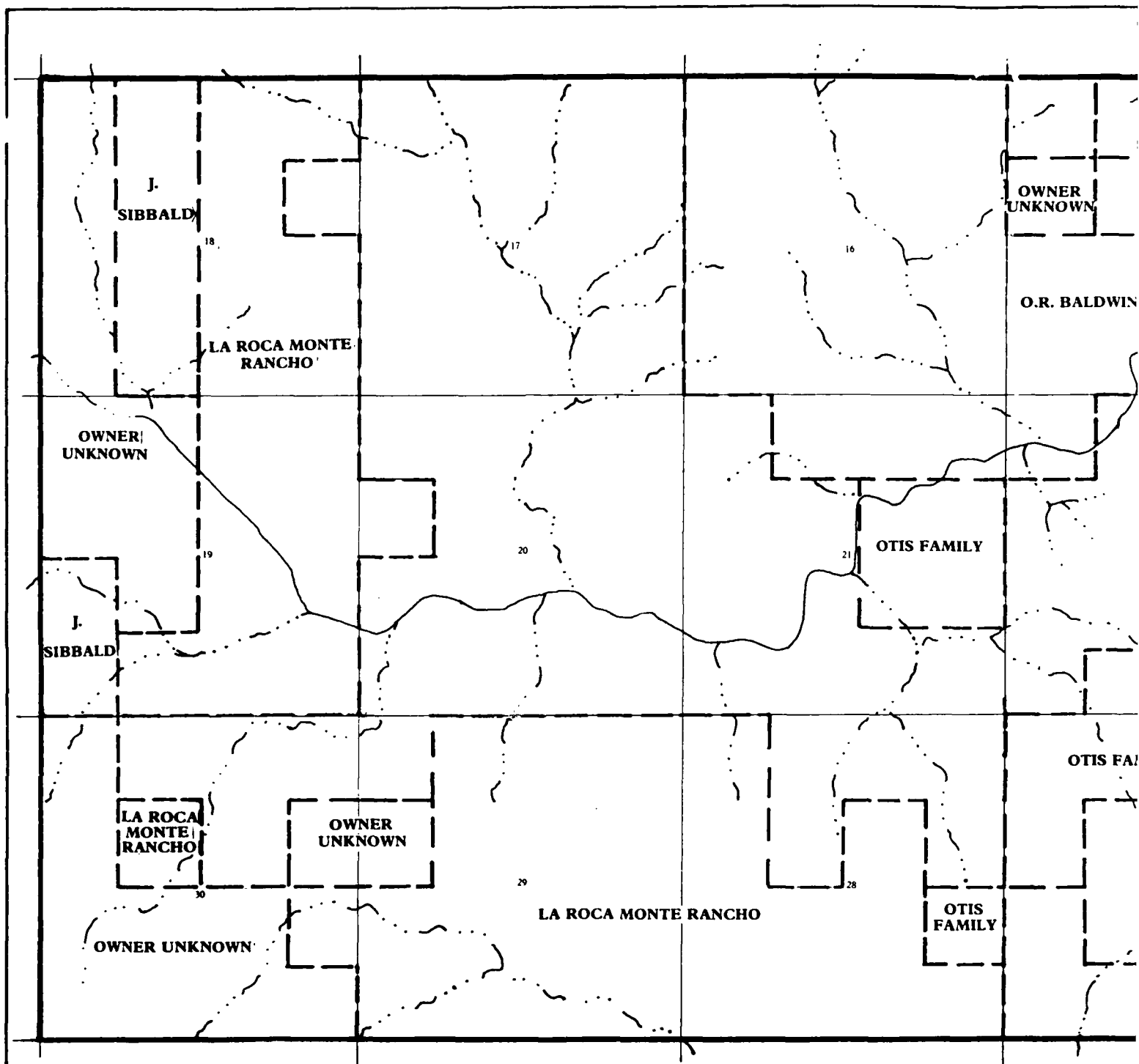
LAND TENURE
1912

NOTE: TITLE CHAIN NOT ESTABLISHED FOR
SECTION 36; NO OWNERS ASSESSED
FOR LAND IN SECTION 36.



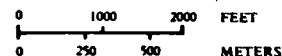
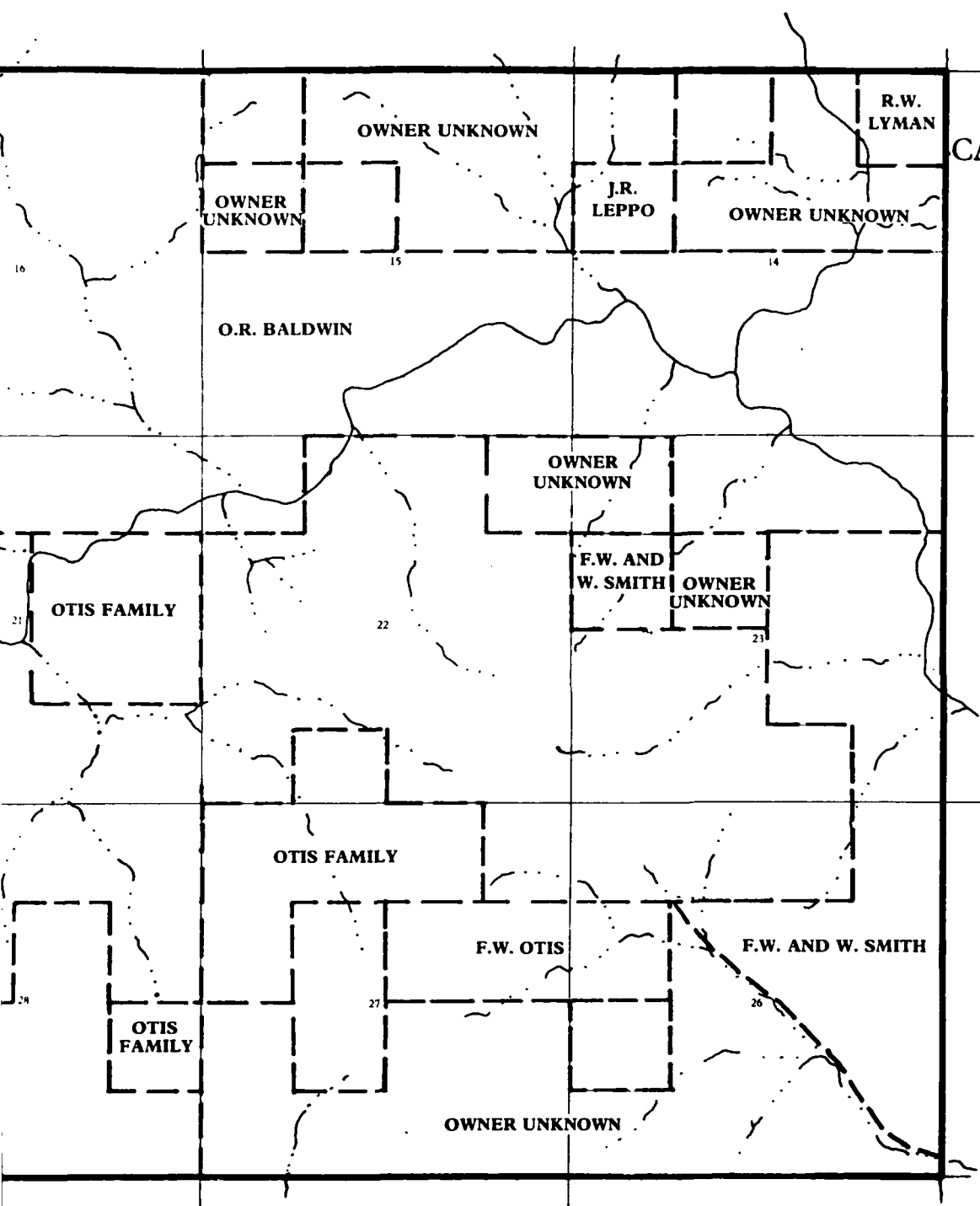
0 1000 2000 FEET
0 250 500 METERS





UPPER DRY CREEK
CANDIDATE HABITAT
ZONE

LAND TENURE
1912



Summary: 1891-1914

During this phase, many early study-area settlers either died or moved away. Samuels, Howard, John Bryant, and William Bryant all lacked male heirs to take over their ranches. Bishop's sons moved to Arizona, where they started their own ranch, while Sibbald's son did not work his father's land. As the men in these families grew old or died, these properties were, for awhile, managed by others and eventually sold. Some family ranches, in particular those with sons, persisted into the second, and even third, generation. The sons of Matthews, Joseph Otis, and Ferry continued ranching and added to their families' holdings. A pattern of continued tenant farming or sharecropping emerged during this period. Two generations of the Nobles family raised sheep on land owned or partly owned by others.

Map 20 of the Upper Dry Creek CHZ is essentially a map of transition. Of the properties defined on it, only the land of the Otis family was not in the process of being transferred. Between 1899 and 1903, the properties of George and William Hood and of M. Hanley passed from William Dingee to Orville Baldwin to O.R. Baldwin (Greenwood et al. 1980b:135). John Ferry's property was sold prior to 1900 due to foreclosure of a mortgage, while the property of Johnson was being dispersed in 1900. Mary Bishop was in the process of selling Rockpile Ranch following the final distribution of her husband's property. During this period, very little land passed from public domain to private hands, but most private land changed hands at least once. The final map of the Upper Dry Creek Zone in 1912 (map 23) shows the extent of Baldwin's holdings in the study area. Casper Ornbau's La Roca Monte Rancho Corporation had just begun to purchase land at this time; most of the "owner unknowns" on the map (except those in the northeast corner) and the property of Sibbald soon became part of the corporation's holdings and were possibly being transferred at this time.

A few study-area residents accumulated vast landholdings during this period and shortly following it: O.R. Baldwin owned 8,000 acres in 1903,

George Matthews owned 10,000 acres by 1937, and La Roca Monte Rancho owned 20,000 acres around 1920. All of these holdings were used primarily to graze sheep. Concurrent with the initiation of these large holdings, a few families were making an effort at homesteading study-area land. The Kelly family and the Throop family each made an attempt to homestead land around 1900. Both families appear to have been successful for a time, but the Throops were bought out prior to World War I. It is noteworthy that, even at this late date, a family could still homestead a sizeable piece of property.

Land use for many parcels during this last period seems to have been more mixed. The holding of property was seen by some primarily as an investment; sheep could be raised on the property to pay for the investment, with hunting and other recreational activities playing an attractive side-light.

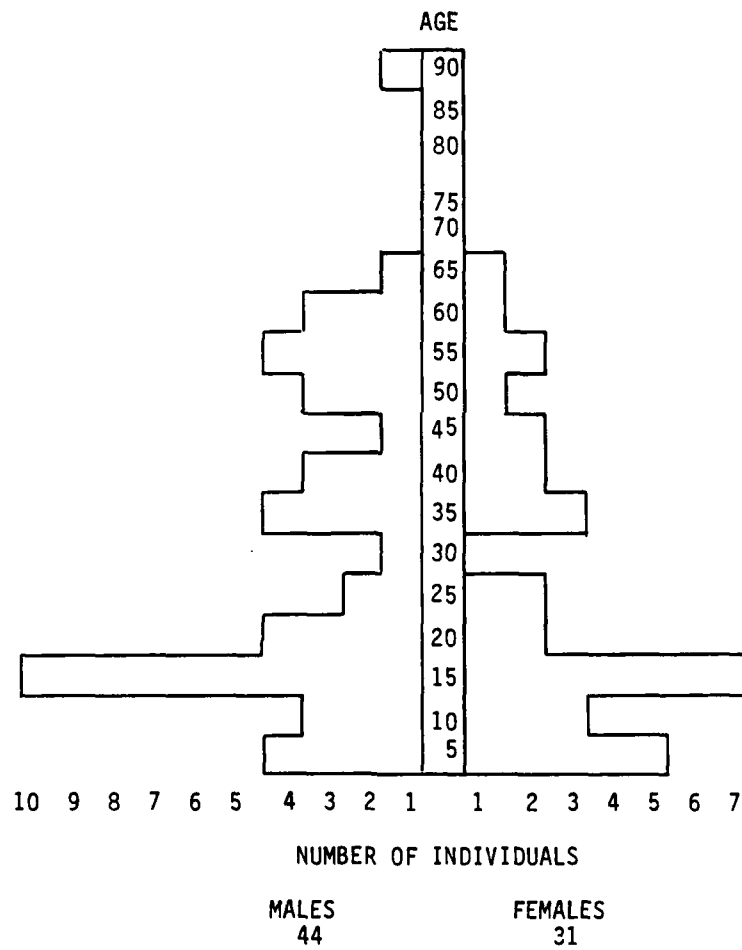
Discussion

Demography

Most of the earliest study-area settlers came from the Old Frontier: Ohio, Missouri, and Tennessee. The majority were already middle-aged; at least two men, Samuels and Bishop, had been in California for over a decade, and each worked at a trade prior to starting his ranching enterprises. As study-area lands were not surveyed and opened for public sale until relatively late in the 19th century, it is possible that an entire early generation of settlers passed without record. Schuster, the earliest recorded settler in the study area, was already 45 in 1860 and did not live long enough to file a patent on the land he had worked.

The 1880 census is the first document which gives a good picture of the demography of the study-area residents. Figure 3 was constructed using data on families who owned land and resided in or near the CHZs. (Because the study area consists of three separate and arbitrarily constructed parcels, the totals in figure 3 could be skewed by a number of factors.) In 1880, there was an abundance of single men within the study area, working as laborers on the ranches. Men outnumbered women in almost all age groups. Inter-marriage was common among area residents. Many men and women within the study area lost a spouse and later remarried. During the early period,

FIGURE 3
DEMOGRAPHIC PROFILE
1880



brothers commonly lived together, in some cases with their widowed mother.

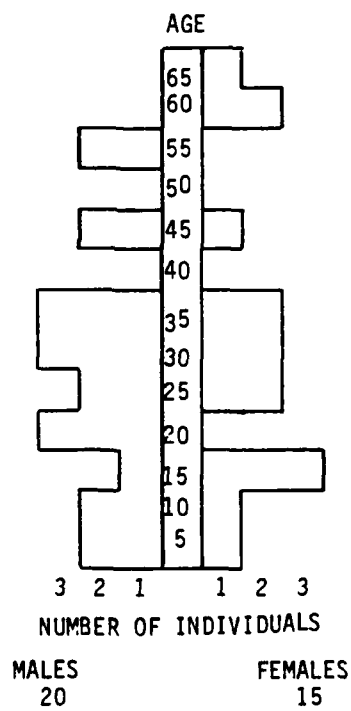
In 1880, Great Britain--Wales, Ireland, Scotland, and England--supplied the greatest number of study-area adults (over 16), with 12 persons originating from there. Seven settlers listed the Old Frontier (Ohio, Missouri, and Tennessee) as their place of birth. While five adult residents were born in California, four were born in Canada, four on the East Coast, and one each in Illinois, Iowa, and Virginia. Seven American Indian adults also resided in the study area in 1880.

Figure 4, constructed from the 1900 census, shows a dramatic reduction in the study-area's population. Some of this decline could be due to difficulties in identifying tenant farmers, however a significant decrease in population is believed to have taken place. The large number of school-aged children in figure 3 had grown up and moved away, while their parents had either died or retired to city life. Males still outnumbered females in the study area in 1900. Matthews and the Otis brothers had remained bachelors, as did the hired help on some of the ranches. Large sheep ranches required less manpower, hence the decline in the area's population coincided with the increase in size of landholding.

During this period, most of the recent arrivals (after 1880) over the age of 16 came from other parts of California; nine new area residents listed California as their place of birth. Two newcomers emigrated from Ireland, while one each came from Arkansas, Iowa, Indiana, and Canada.

Comparison of figures 3 and 4 shows a decline in the area's birth rate. This pattern was not unique to the study area but was a general characteristic of the late 19th century. By 1900, the fertility of the rural, white population was only about 60% of what it had been 100 years earlier (Easterlin et al. 1978:59). Demographers studying the 19th century have linked this decline in fertility with the decreasing availability of farm land and the closing of the frontier. Easterlin et al. (1978:65-71) found the lower fertility rates in older areas as opposed to newer areas of settlement to be a function of shorter childbearing years of women in the older areas. As land availability decreased and the cost of establishing new farm households increased, the age of marriage rose. Likewise, the greater cost of establishing nearby farms for adult offspring induced these couples to curtail their childbearing at a younger age than couples living

FIGURE 4
DEMOGRAPHIC PROFILE
1900



in frontier situations where land was more readily available.

There is some evidence of this pattern in the study area. Here, the availability of productive land declined after about 1875. Men who had not arrived in the area with families generally remained bachelors until early middle age. Landholdings passed from father to oldest son, so while the owner's brother may have worked on the property for a time, the brother would have needed sufficient funds to begin his own farm when he wished to marry. This also applied to the younger sons who would either take up ranching/farming outside of the family's holdings or leave the area entirely to begin a family. The lack of funds and scarcity of suitable land kept these men single and within the family operation for most of their younger years. Thus, the large acreage requirement of sheep ranching did not permit fragmentation or formation of new enterprises and forced the eventual emigration of all but the eldest son.

Daughters of the study-area settlers appear to have remained single until their mid-20s, a relatively long time. S.D. Howard's two daughters are perhaps a good example of this pattern; both women in their mid-20s remained unmarried and living at home, apparently working as school teachers in 1900. Reduced fertility and emigration account for some of the decline in population evidenced in figure 4.

Appendix A lists data for study-area settlers from the census returns of 1860, 1870, 1880, and 1900.

Patent History

Government laws affect the relationship between nature, regional culture, and the economy. Federal land policies had a profound influence on development within the study area. These policies have been criticized for failing to recognize the grazing requirements of the stockman, placing the same limitations on western lands as they did in the East for the "farmer who tills the earth" (Wentworth 1948:515). Ranchers could not operate under such conditions and were forced to instigate various schemes which enabled them to accumulate large landholdings which "flew in the face of the intent of the law" (Strickon 1965:240).

All of the major early CHZ ranchers arrived in the area prior to its official "opening" for sale following the Government survey. This timing

allowed for a period of experimentation with the environment without the need for capital outlay on the land; viable ranch units could be established by the time land was available for purchase. The ranchers' problem was how to establish their claims to these areas.

A general trend which can be identified in table 6 data was the early, common use of the 1820 Sale of Public Land Act for title acquisition. As this approach gradually became less popular, there was a concomitant rise in the number of claims under the 1862 Homestead Act. Clearly, the requirements of the two acts influenced would-be patentees in their patenting strategies. Under the Act of 1820, neither improvements nor residence on the land was required--simply the ability to pay cash. The 1862 Homestead Act, however, while awarding lots of 160 acres free, required that homesteaders improve and reside upon the land for five years prior to award of the title. During the early period, the Act of 1862 limited the amount of land which could be homesteaded at one time to 160 acres. A homesteader could, however, purchase 160 acres at the same time under the terms of the Sale of Public Land Act. Study-area residents were shrewd enough to buy adjacent acreage for cash and, at their leisure, file homestead claims on the land on which they actually lived. This was done with the knowledge that title to their dwelling sites could be protected from claim jumpers, at least temporarily, by the 1841 Preemption Law.

Changes in the 1862 Homestead Act may account for the increase in homesteads filed after 1910. The 1862 act had been designed based on the experience of Ohio Country settlers and the agricultural suitability of that fertile and well-watered region. In much of the arid West, however, 160-acre plots were too small to be economically viable as agricultural units. The Enlarged Homestead Act of 1912 doubled the area of land which could be homesteaded by an individual. The Three-Year Homestead Act of the same year reduced the mandatory period of residence required of homesteaders; in addition, only seven months of every year had to be spent on the land to establish residence. The Stock Raising Homestead Act of 1916 further recognized conditions in the West by allowing 640-acre homesteads to be filed on land designated suitable for stock raising. Several patentees in the study area after 1918 seem to have been large landowners who took advantage of the Stock Raising Act to patent relatively large tracts. Other homesteaders at this time were either local residents,

TABLE 6
CHZ PATENT REGISTRATION BY DECADE

	<u>Sale of Public Land</u>	<u>Homestead</u>	<u>Other</u>	<u>Totals</u>
1874-1879	13	1	6	20
1880-1889	10	4	2	16
1890-1899	3	1	-	4
1900-1909	4	5	1	10
1910-1919	19	5	-	24
1920-1929	6	9	-	15
1930-1939	-	8	-	8
1940-1946	1	-	-	1
Totals	<u>56</u>	<u>33</u>	<u>9</u>	<u>98</u>

patenting 160-acre parcels adjacent to their present holdings, or inhabitants of the county at large laying claim to 40- to 160-acre lots, presumably for recreational purposes.

The early period in the Upper Dry Creek CHZ saw a rash of patenting immediately after the area had been surveyed in the 1870s and thus opened to ownership. Local families purchased land patented for them by others, as well as the land they were entitled to patent themselves. Active patenting continued through the 1880s, with local families accumulating larger holdings by purchasing parcels from the Government and from individuals. By 1880, the average holding had increased to over 1,000 acres. Ranchers controlled water frontage, rendering the public land without access to water and thus valueless as grazing land to outsiders. In this way, ranchers guaranteed themselves future use of public land without the necessity of immediate purchase. Land purchases from the Government dropped significantly during the 1890s, probably because of an 1891 Federal law which repealed various public-land policies in an effort to discourage speculation (Hibbard 1965:169). Much of the original settlers' land was dispersed, and a pattern of non-resident ownership was established around 1900. By 1912, corporate ownership had become a significant influence to further increase the size of individual tracts, while cutting the area's resident population (see figure 5, which shows landholdings within the Upper Dry Creek CHZ). Some resident homesteading by new families did occur during the period 1900-1912. As these people sold out shortly after their patents were confirmed, it is possible that their efforts were unsuccessful.

Writing of ranches in Saskatchewan, Canada, Bennett (1969:228) discussed the relationship between the family cycle, the developmental cycle of the enterprise, an unfavorable economic or climatic condition, and property transfers. This relationship is evident in the present study area, where the passing on of the "pioneer" generation coincided with a need to expand landholdings, possibly as the result of deteriorating rangeland. Large operations which used their land and labor more extensively replaced the original smaller, more intensive, operations. Increased ranch size is described by Strickon (1965:246) as an "adaptive factor" in the face of unstable ecological and economic factors.

Acquisition of land in the Rancheria Creek CHZ did not proceed at a fast pace. Although titles were granted to two claims, including 120 acres

FIGURE 5
INDIVIDUAL LANDHOLDINGS: UPPER DRY CREEK CHZ

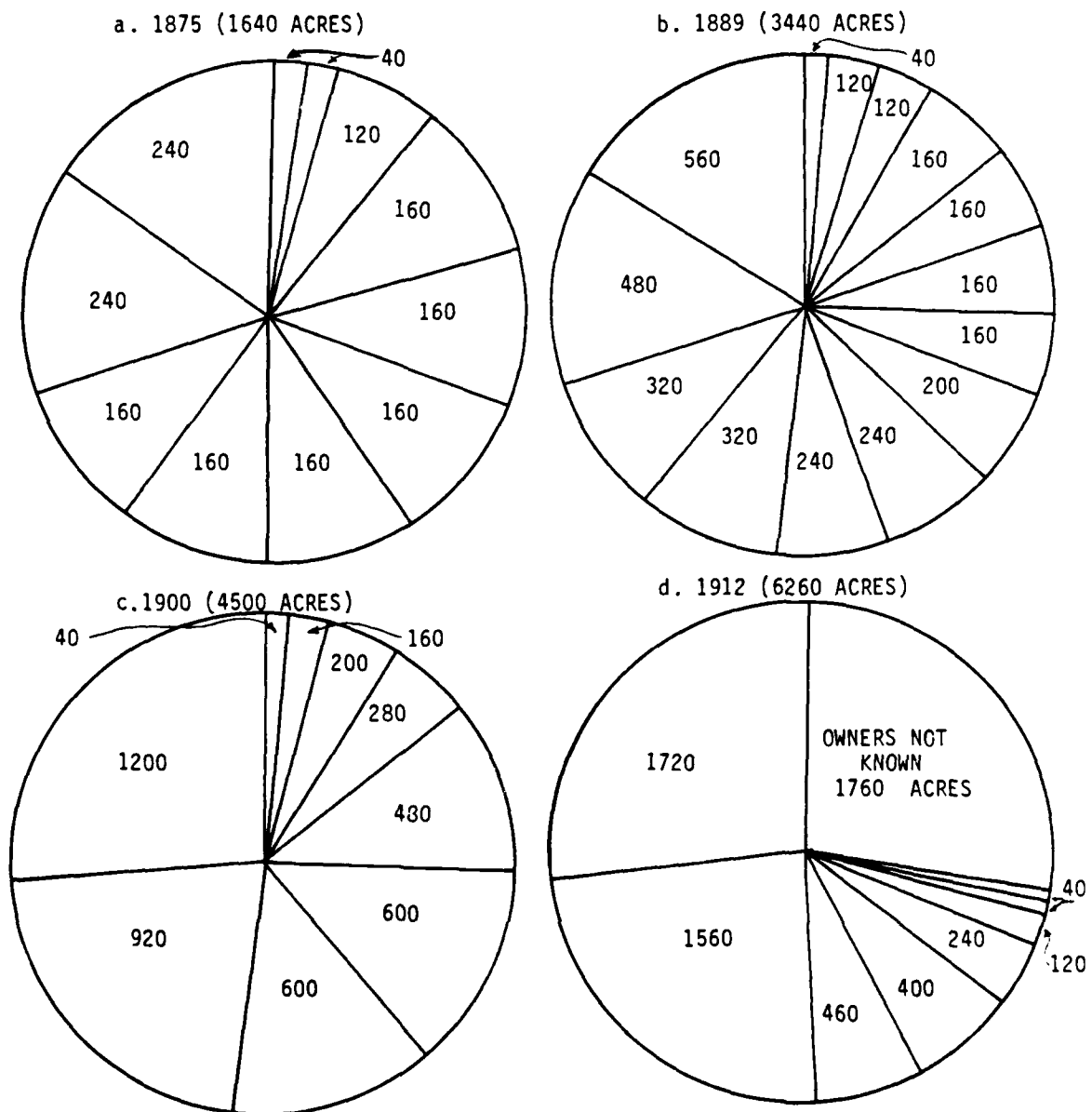


FIGURE 6
LAND OWNERSHIP: UPPER DRY CREEK CHZ

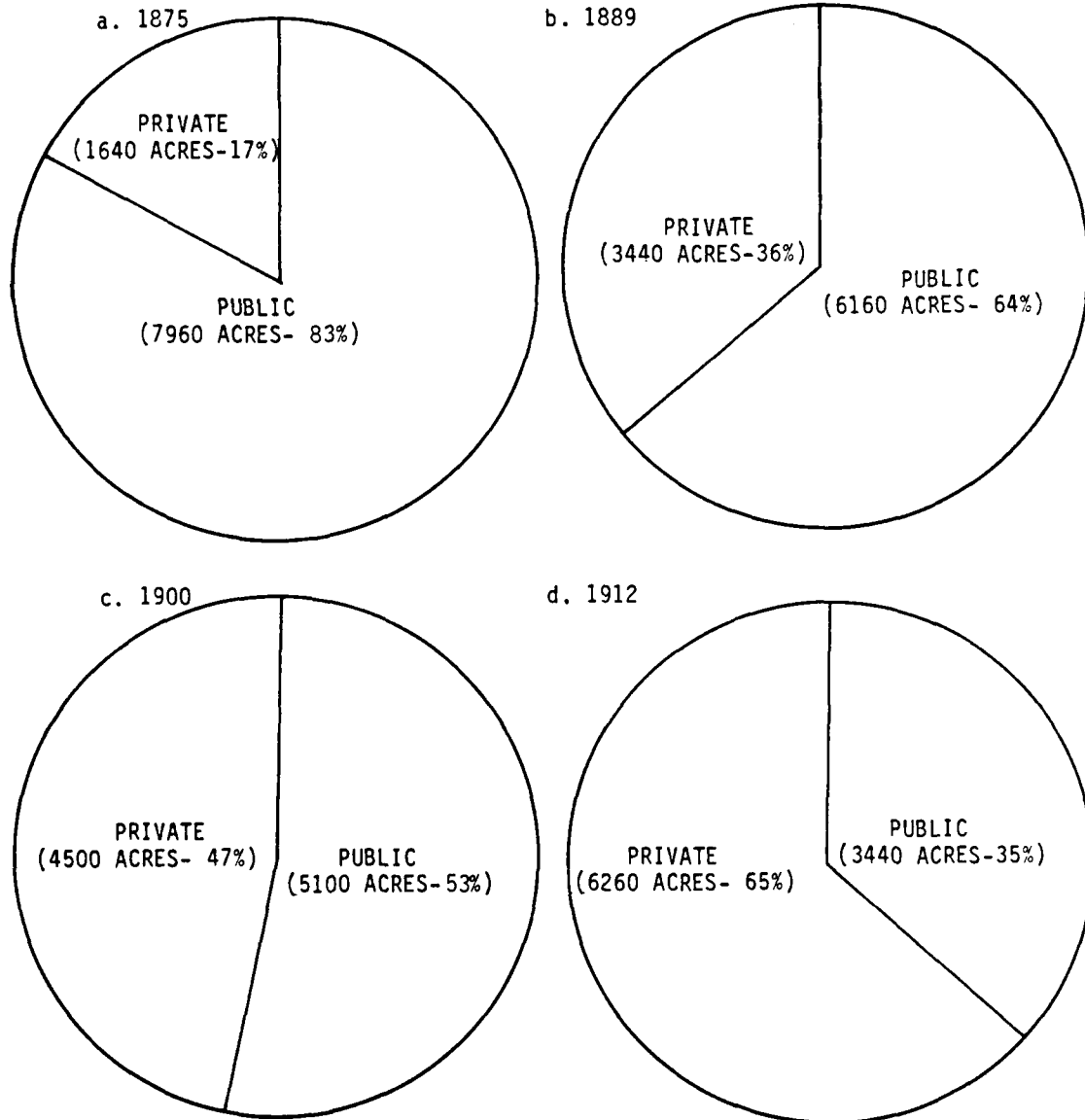


FIGURE 7
LAND OWNERSHIP: RANCHERIA CREEK CHZ

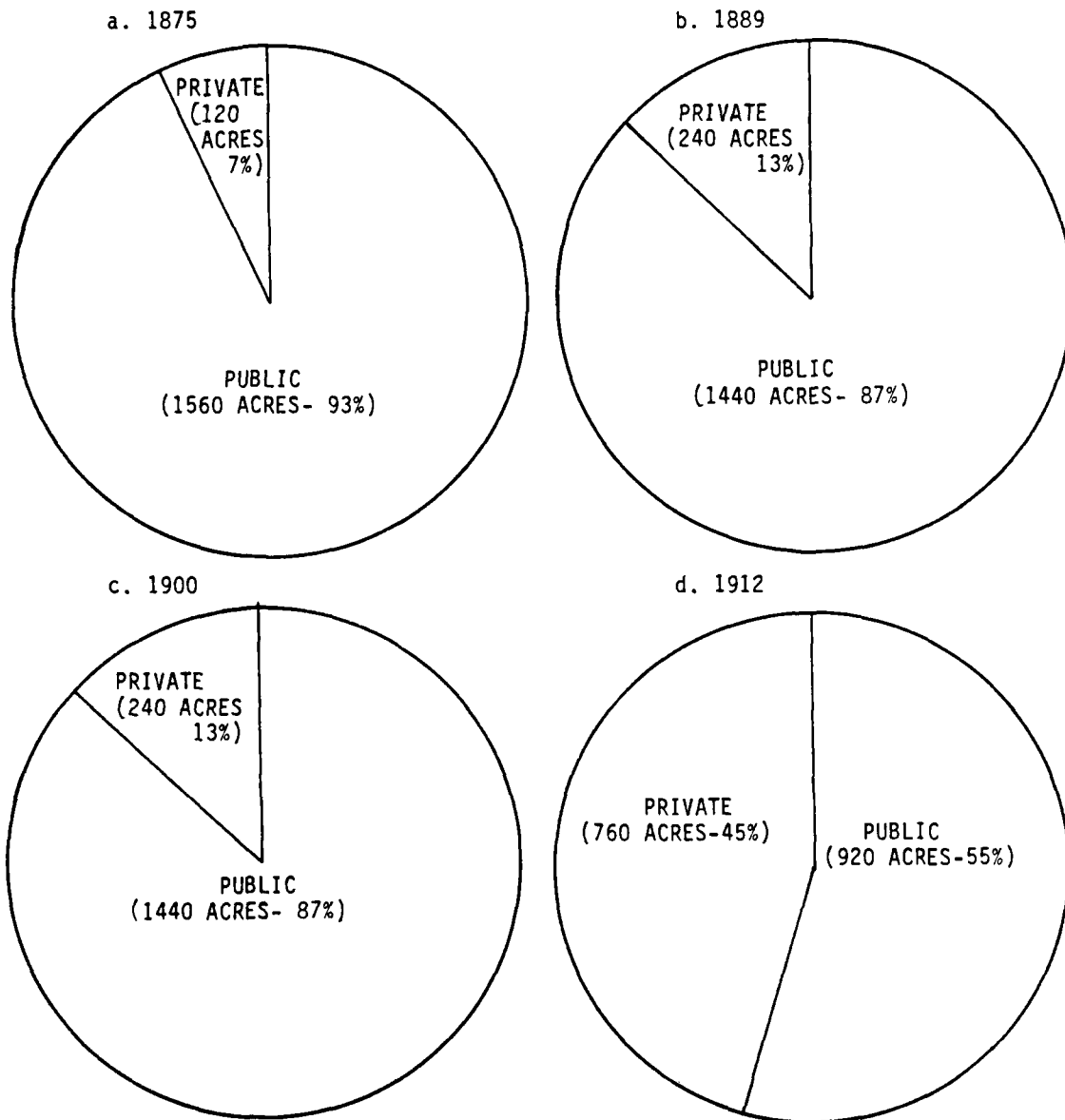
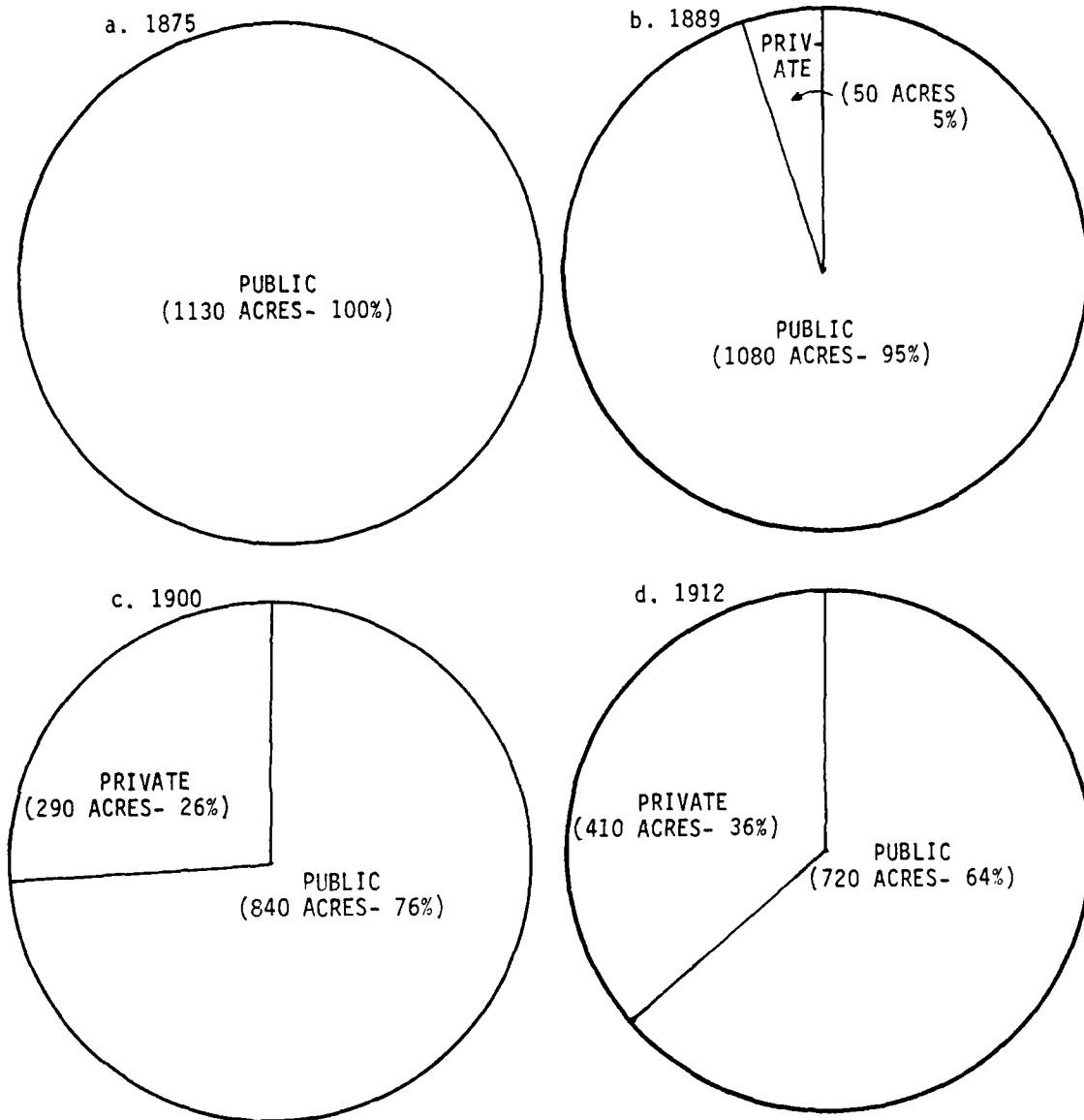


FIGURE 8
LAND OWNERSHIP: DRY CREEK CHZ
(Including T10N/R11W, Sec. 4, Excluding T11N/R11W, Sec. 36)



total in the study area shortly after the land was opened to such claims, by 1900 only an additional 120 acres had been patented. Between 1900 and 1912, however, several individuals purchased 160-acre tracts in the area. In spite of this increase, by 1912 only 45% of the available land had been claimed, compared with 65% in the Upper Dry Creek Zone (figures 6 and 7).

The Dry Creek CHZ data presented in figure 8 includes information on the portion of the study area in T10N/R11W, Section 4, as well as that in the area of Pritchett Peaks (excluding T11N/R11W, Section 36). Since most of the former property had been patented by 1900, the figures may be somewhat deceiving. No title was granted in land adjacent to Pritchett Peaks until nearly 1900. By 1912, little more than 36% of the available land in this section was in private hands.

Horticulture

The study area's vegetable products were not the predominant economic product at any time, although they doubtless contributed, especially during the era of the family-run ranch, to the viability of these operations. The crops were apparently grown for three purposes: as fodder for animals; for domestic consumption; and as "cash crops." The most productive land for this purpose would have been the creekside bottomland. Access to water was essential in this region of summer drought, while only bottomland soils would have been fertile enough to produce good crops. The use of such land is documented adjacent to the study area as early as 1874, when GLO surveyor Chapman noted "Matthews House and Field" at the junction of Dry Creek and McChristian Creek in T11N/R12W. Howard, whose Dry Creek CHZ land extended into the valley near Cloverdale, was also described as having a "field" by a GLO surveyor in 1875. In his 1880 return, Howard significantly described himself as a "farmer," rather than a stockraiser as did other local people. His operation may have involved horticulture to a greater extent than that of other CHZ residents.

Animal fodder in the form of Indian corn, hay, and oats was grown in volume on most ranches in the 1870s. Ranchers listed as much as 20 acres each of these crops. Some of these products would have been used as winter fodder for sheep and cattle, "fattening-up" food for yearling animals to be

sold for slaughter, as well as providing the regular diet of the farmyard animals which supplied the domestic needs of the ranch inhabitants. Some ranchers also grew grains suitable for making flour in quantity, indicating production for home consumption. Apple and peach orchards of up to 2 or 3 acres seem to have been common. The recorded volume of fruit produced in these orchards may have made it economically worthwhile to sell it for cash. Certainly, the location of the orchards would have insured that the fruit ripened slightly after valley-grown crops, perhaps increasing their value. At least three ranchers (Bishop, Matthews, and Baldwin) in the general upper Dry Creek area and one in the Dry Creek zone grew grapes. While growers in the former zone had small parcels (about 1 acre) devoted to vines and apparently did not sell their produce, Howard's investment was such that in 1890 he described himself as a "wool and grape grower" (Polk 1890). Although few data exist to document the practice of horticulture in the study area in the latest period, it is believed to have declined along with the demise of the family ranch and the rise of non-resident ownership of land. It seems probable that increased labor costs, together with the rise of large grain farms in the Central Valley and the concomitant drop in the price of these products, made their production economical in much of the study area.

Stock Ranching

The modern ranching complex developed in the 1860s in response to the demands of the urban market, aided by the development of the meat and raw materials processing complex and an improved transportation network. Strickon defined this kind of ranching as:

That pattern of land use which is based upon the grazing of live-stock, chiefly ruminants, for sale in a money market. This pattern of land use is characterized by control over large units of land, extensive use of that land, and extensive use of labor on the land (1965:230).

Ranching as practiced in the Upper Dry Creek CHZ can be seen as part of this complex, becoming progressively more land- and labor-extensive through time. Until the mid-1870s, the most important documented activity in the study area had been stock cattle raising. Between about 1870 and 1880, however, sheep raising took over this position and cattle largely disappeared from the area, although dairy cattle ("milch cows") were still kept.

This change from cattle to sheep involved a decrease of up to 90% in the ranchers' per-animal investment. The Sonoma County sheep population peaked in about 1880 and then declined, as is indicated by the following figures:

1860	35,539	(Kennedy 1864:10)
1870	63,586	(U.S. Bureau of the Census 1870a)
1880	156,554	(Department of the Interior 1883:841)
1890	74,604	(Department of the Interior 1895:239)
1900	49,126	(U.S. Census Office 1902:420-421)

This decline may have been due in part to progressively deteriorating grazing lands. Although the ranges of California were not perceived as different from eastern rangelands, they were, in fact, significantly so, having lighter forage cover than rangelands with summer rainfall. Eastern grazing methods proved to be detrimental to California ranges, which required lighter and more carefully seasonally controlled rates of grazing. Burcham described the problem as follows:

Disturbances of the plant cover, by grazing or other activities, favored vigorous responses of native annual plants of inferior quality--and of introduced grasses and forbes--to a much greater extent than on eastern ranges. Range lands with these characteristics may deteriorate rapidly under improper grazing practices and are very difficult to restore (1961:147).

All of the study area's early sheep ranchers had moved to California via other sheep-raising areas in the United States or the United Kingdom. It is unlikely that any of them had previously experienced the adverse effects of sheep grazing on California rangeland. Given this initial ignorance and the evidence of the 1880 bumper sheep year followed by a decline in sheep population and a general emigration by these early settlers, it seems likely that the local environment had been altered by destructive grazing practices.

Declining range conditions in the West generally prompted the Department of Agriculture to begin scientific research in 1895 on methods for the restoration and improvement of grazing land--thus initiating the science of "range management." However, progress was not immediate; as late as 1912, there was not even a semi-technical book on the subject of range management to aid the rancher. Still, some aspects of these new practices were probably attempted by Ornbaun and Baldwin to enhance the productivity of their ranches in the early 20th century. Locally, range-

management classes were taught at the University of California, Berkeley, beginning in 1922 (Wasser 1977:63-77). The relationship between the "sheep explosion" and range decline and the later initiation of range-management practices remains to be fully explored for the study area.

Conclusions

Formation of the Cultural Landscape and Material Remains

Based on the foregoing historical research, it is possible to predict the types of cultural features which might have been created in the study area. Although archaeological, as distinct from extant, remains are not addressed specifically, these are likely to have been formed wherever domestic or certain types of agricultural activities took place.

Documentation of the study area's uses before about 1865 is sparse. If the pattern of use approximately parallels that of similar environments in the area, however, several activities may be expected to have taken place, including scattered homesteading oriented toward stock cattle; seasonal use for stock grazing by non-residents; trapping and market hunting; and mining. Some domestic habitation sites with associated corrals and outbuildings may be expected at this period. The necessity for access to the valley markets would have led to the establishment of trails. Since creekside roads would have been impassable during the winter months (field data 1981), the ridgetop system may have had its beginnings at this time. Trapping and market hunting per se would not have contributed much to the cultural landscape of the period, although temporary shelters of split shakes and/or logs may have been constructed for seasonal use. No documentary evidence of mining in the study area was found, although it seems likely that the land was inspected for its mineral potential, and perhaps some prospect holes were dug during or shortly after the Gold Rush and during the brief Dry Creek "silver rush" of 1863.

In the period circa 1865-1875, stockraising and subsistence agriculture by small, single family units increased, and year-round occupation became more common. The methods of land acquisition of some of these families indicate that they were sufficiently well-off to afford fairly substantial houses and outbuildings; the latter would be expected to reflect the individual farmers' economic orientation. To differentiate land-

holdings in areas containing valuable resources--such as bottomland--fences were constructed. Spring development would likely have been initiated by this time.

Between 1876 and 1890, many of these family-run farms experienced the zenith of their success and blossomed into small communities containing several social strata and differentiated roles, including the owner, his family, children, and younger brother, and year-round and seasonal hired hands, both White and Indian. The study area's overall population was highest at this period. The period also saw the change from cattle to sheep raising as the most important economic pursuit. Given the local economic climate, much new construction would have been undertaken during this period to keep up with increased livestock population, reflecting the new importance of sheep. (For a description of the distinctive architectural types associated with sheep and cattle raising, see Halsted 1977 and Wentworth 1948.) In addition, the diversity of the human population would have been reflected in the construction of new dwellings and other buildings and in their proxemic arrangement.

During the latest period considered, 1891-1914, the decline of the type of community described above began and was essentially completed. Most of the previously successful families moved away, and the area's mean year-round population was sharply reduced. Ranching on a level resulting in little accumulation of capital ended at this time, when the land was purchased by a few large-scale sheep ranchers. With the departure of many year-round owner-residents, dwellings fell vacant and some were used for recreational purposes. Some old ranch complexes, however, became the centers for the new, large-scale, sheep-raising operations, and were subject to an increase in construction and the modernization of farm facilities. At this time, some recreationalists/land speculators combined these two interests by constructing small cabins on Government land which they used seasonally as hunting lodges and which also served as homestead "improvements," allowing the eventual patenting of the land.

Research Implications

The historic-period settlement and land-use pattern of the study area has been reconstructed from the historical record, since no archaeological reconnaissance has been undertaken. (Folklorist Karana Hattersley-

Drayton made a cursory check for examples of vernacular architecture and elements of folk material culture in portions of the study area fronting on Hot Springs Road; her report constitutes Appendix B.) Because the archaeological significance of the CHZs could not be determined using field data, the area's research potential is considered here based on the application of anthropological theory to the historic patterns revealed through archival research.

Historical sites may be considered significant when they reveal distinctive and unusual settlement (or other cultural) practices. Of greater importance to the development of anthropological theory, however, are sites or complexes of sites that reflect a particular, widespread behavioral pattern during a particular time period. Hickmann (1977) suggested that such "representativeness" is a valid criterion for evaluating significance. The general settlement and subsistence patterns identified in the study area are representative of parallel, regionwide trends which occurred during the period researched. These patterns may also be seen as representative of ranchers as a cultural group.

Bennett (1969) described the "cultural style" of the rancher and its relationship to the rancher's mode of economic production. Ranchers, with their intensive land use, each exhibit different styles, values, and perceptions of the environment. While the rancher feels himself, regardless of his practices, to be a part of "unspoiled" nature, the farmer sees nature as something to compete with and to tame. The rancher has a concept of "the wild," while the farmer thinks of nature as "wilderness" (Bennett 1969:94). The self-sufficiency, isolation, and hospitality valued by ranchers are responses to dispersed settlement patterns in the 20th century as well as in the 19th (Bennett 1969:179). The ranchers of the Dry Creek Uplands and the farmers of the Dry Creek Valley can be viewed as representatives of different cultural groups. The expression of these differences upon the cultural landscape and within the material remains of the two groups and the relationship of these differences to other cultural factors, such as ethnicity and economic status, are research concerns which could be studied in the CHZ and WSCRS areas. Thus, further study of well-chosen examples of ranches in the CHZs carried out in the context of these larger patterns could serve to further develop these factors and illuminate their effect on local historical change and development.

CHAPTER 5

TWENTIETH-CENTURY POPULATION AND LAND USE

Introduction

This chapter focuses on continuities and changes in the population of the candidate/critical habitat zones and the use of the land in the area from World War I to the present. From the interview program (described below), four major uses of the land emerged--sheep ranching, timber harvesting, hunting, and recreation. Sheep ranching continued to dominate the economy of the Dry Creek Uplands until the late 1970s. Timber exploitation accelerated after World War II and in many cases has supplemented the faltering sheep economy. Hunting for both subsistence and recreation has played a significant role in the land use of the study area, from homesteading days to the present. The recreational value of the land has attracted both resident and nonresident owners to the area.

Interviews also revealed a consistent set of cultural values operating among residents and owners in the zones. Consultants often gave similar reasons for acquiring property in the uplands, and their descriptions of their current lifestyle and economic values associated with the land were frequently parallel. The final section in this chapter, A Cultural View of Residents and Owners, has used the concept of values as an organizing framework for describing the culture of the uplands today.

Methods

Research emphasis for this component was placed on an interview program. The records of the Sonoma County Assessor were examined to determine property ownership in the CHZs, and a list of consultants, including all property owners, was derived from these data. To this list were added consultants who had proven valuable sources for previous WSCRS research projects, including persons who had previously owned property or resided in or near the CHZs, as well as persons knowledgeable regarding the general area. The consultant list was divided among the research staff of this component, and the interview program was initiated. All but one of the landowners contacted granted interviews (see consultant list).

Many interviews were carried out with more than one member of the staff present in order to address multiple aspects of the component and to insure accuracy in data collection. Where appropriate, interviews were tape-recorded. Although questions regarding historical land use, family histories, and land ownership were included in each interview, data provided by consultants were many times historically incomplete. Where possible data were checked in Sonoma County newspaper archives and the title records of the Sonoma County Recorder. Interviews were also conducted with representatives of several public and private agencies whose specialized knowledge of such matters as sheep predation, timber taxation, property values, and so on, provided background for interviews and specific data for this report.

The interview program was successful and most rewarding. All consultants were cooperative and cordial, providing the bulk of the data for this component. (Unless otherwise noted, all information in this chapter came from field data.) The result is a narrative style report which includes the historical context where such information was available, but which principally addresses land use in the candidate/critical habitat zones over the last 70 years and the values of the Dry Creek Uplands' population today.

Sheep Ranching

Introduction

Sheep ranching has been the primary system of land use and the dominant source of revenue within the study area for more than 100 years. During the 1870s, sheep began to replace a portion of the cattle herds and, by 1876, there were 250,000 sheep in Sonoma County (R. Thompson 1877:28). It was discovered that sheep could provide a greater economic return per acre than existing livestock, and over the next several decades the sheep population increased rapidly. The history of sheep ranching within the Dry Creek Uplands has been described (Theodoratus et al. 1979:114-121). The purpose of this chapter is to augment previous research and examine the present status of sheep ranching within the candidate/critical habitat zones.

Sheep have been the ranching animal of choice within the Dry Creek Uplands for several reasons. They can easily climb the rugged hills found there, which allows them access to areas too steep for most other grazers. Sheep will forage on plants that other livestock will not eat. Because sheep are small and docile, they are easily managed and can be contained with relatively low-cost fencing. Sheep provide two products--meat and wool.

The Merino was the first breed of sheep raised in the study area. It is a small, rugged, wiry animal that was brought to California by early Spanish settlers. The Merino produces excellent wool, but its meat is poor in quality and limited in amount. Economic necessity induced cross-breeding, as the rancher had reached the point where he was no longer able to pay annual expenses from the clip alone. As early as the 1870s, "imported" sheep, assessed at several times the value of "grades," appeared regularly on study-area ranchers' assessment returns (see Chapter 4). In the 1930s, a study-area rancher imported Corriedale sheep, which he cross-bred with Merinos. The result was a larger animal that produced meat and wool. Sale of meat increased revenues. The breeds that replaced the Merino, however, were more susceptible to disease and suffered from worms, parasites, and foot fungus. Some of the increased revenues were offset by larger veterinary fees (field data).

Range Management

From about 1880 to 1950, sheep ranches were consolidated in response to economic pressure. The majority of the first ranches contained a few hundred acres or less; their owners either sold out to, or bought out, other ranchers. Because sheep ranching provides a low rate of return per acre, the primary way to increase income per ranching unit was to add acreage to that unit. By 1900, the average ranch contained over one thousand acres (Theodoratus et al. 1979:177; field data). Range improvements included erecting fences to reduce the size of the available sheep pasture and thus reduce the amount of grass trampled and the erosion caused by the action of winter rains on sheep trails. To this end, one landowner erected more than 15 miles of fences on his property (Baldwin 1941:169).

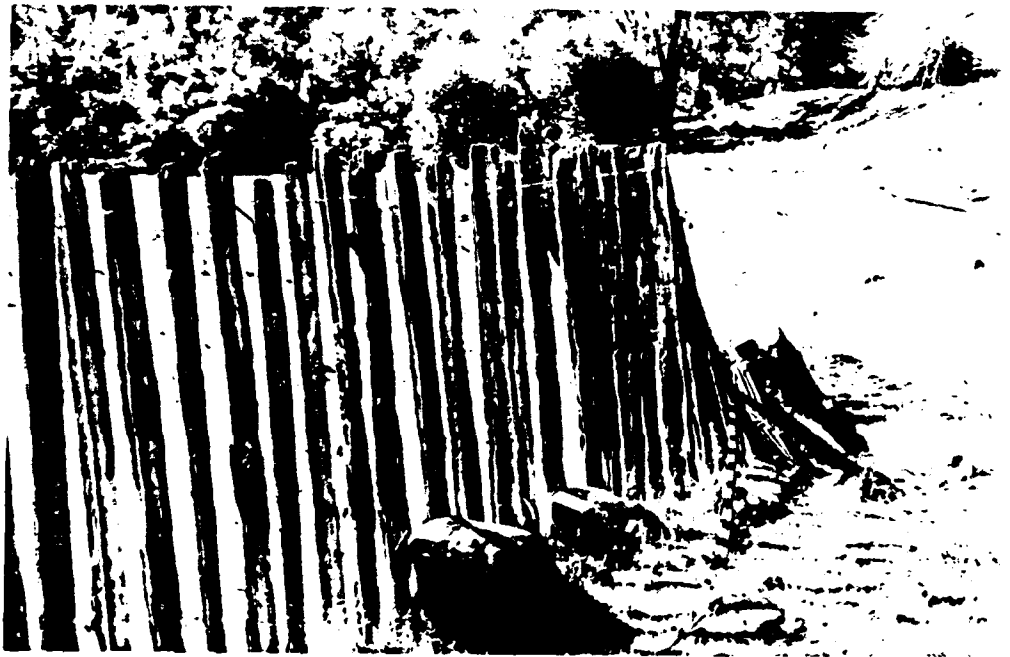
Another means of improving rangeland was to enlarge the load-bearing capacity of the land by increasing forage. Because trees are natural competitors with grasses (Murphy et al. 1976:24), land clearing has been practiced extensively in the study area. Many trees in the area were girdled, as this method kills trees more effectively than cutting does. Some species, particularly tan oaks, send out numerous "suckers" from the cut stump, resulting in more foliage, but girdled trees rarely produce suckers. The tree topples within two to four years, and the downed wood is then burned. Trees are no longer girdled within the study area; they are cut down and used for timber or firewood.

The recent history of local tree-removal practices can be summarized in the words of a local rancher:

The thinking on this has changed dramatically. You know the old-timers in this country girdled enough timber to build a bridge from here to Los Angeles. They would go out with an axe, chop the bark, ring the tree, the fir. They found out it didn't work on redwood, but they'd ring that fir tree, cut the bark all the way around like that, and let it die. Get more pasture. And when the loggers finally moved in, it became a fact that timber was valuable. All the ranchers...logged, immediately after logging they burned it to give 'em more pasture. Well, with the price of stumpage and timber now. In all the areas they burnt, they killed the trees. They're replanting now.

Controlled burning, another effective method for clearing land to increase forage (Murphy 1976), has been used in the Dry Creek Uplands since prehistoric times. George Matthews, an early rancher in the area, was an

PLATE 7



Historic sheep fencing in the Upper Dry Creek Zone.

authority on the techniques of controlled burning, and ranchers from many parts of California sought his advice (field data). Matthews was said to have waited for just the proper conditions of wind and humidity; then, "even if it were midnight," he would burn the prepared acreage. Another consultant stated that, after deciding the time was right, Matthews would drive his sheep to a different range, set the fire, and leave, so sure was he of his skill.

One rancher stated that each year he usually burns 6 to 12% of the land on his sheep ranch, taking five to seven years to complete the burning cycle. The burning is usually confined to chaparral-covered southern slopes. Burning kills most of the above-ground portion of the plants, but the roots remain alive. Several weeks after burning, shoots begin to appear from the root stock. These shoots are far more nutritious, and more palatable to sheep, than the older growth they replace (field data).

Most ranchers prefer to burn on hot, calm days in August. A more complete burn, with minimal danger of spreading to adjacent areas, can be achieved under these conditions. Controlled burning was illegal during World War II, but it recommenced as soon as the ban was lifted. In recent years, Government air quality agencies have prohibited burning on days favored by ranchers. Several property owners expressed concern over the abundant growth that has replaced grazing land during the past decade.

Studies conducted by the University of California have shown that per-acreage forage production can be increased over 300% by using a combination of tree clearance and controlled burning (Murphy 1976:20). Sedimentation, runoff, and soil slippage often increase when these methods are used (Murphy 1976:21; field data), however, and long-term soil damage can result. Until recently, controlled burning was practiced on most ranches. At present, at least four ranchers (one in the Rancheria Creek CHZ and three in the Upper Dry Creek zone) practice controlled burning on portions of their acreage. Their combined holdings comprise about 40% of the study-area lands (field data).

Herd Management

Study-area geography has influenced sheep-ranching practices. Two to eight acres, depending on available forage, are needed per sheep. The animals, left to roam within fenced pasture, are periodically rounded up

for castration, tail removal, shearing, or sale. Except on small ranches, flocks are not tended closely. An individual on horseback, often assisted by sheep dogs, patrols the range looking for fence breaks, sick or dead sheep, and changes in pasture conditions. All sheep cannot be observed every day, because a single individual is usually responsible for patrolling several thousand precipitous acres (field data).

Because the area is hilly and forage limited, most sheep will not fatten enough for slaughter on local grazing lands. Study-area sheep, except those raised for personal use, have been shipped to be fattened elsewhere. Most ranchers have elected to sell their sheep before fattening to a feed lot or another rancher, while some ranchers leased richer pasture on which to fatten their sheep. One consultant stated that in 1923 he began to fatten his own lambs. The sheep were driven by horse and dog to the rail station in Cloverdale. They were then shipped by train to the station that was nearest to grazing land that he had leased, and the sheep were driven to the pasture. The consultant "fed lambs" in 15 California counties, from Mendocino to Imperial. In the 1950s, during the peak years of his operation, he and two partners ran 10,000 head of sheep on 25,000 acres that were located in Sonoma County and the Sacramento Valley.

Most of the shipping took place in June, when pasture lands were usually stubble fields. After fattening, the sheep were sold and shipped to Dixon or the San Francisco Bay Area for slaughter. In later years, trucking replaced shipping by train. In addition to shipping his own feeder lambs, the consultant also purchased lambs from nearby ranchers with money obtained from banks as short-term loans. The consultant stated that he purchased and sold sheep both at auction and to buyers; he preferred dealing with buyers, because the terms were arranged in advance and therefore certain.

During the 1950s, sheep ranchers paid farmers one cent per day for grazing rights. In the 1960s, when Central Valley farmers had to double-crop their land to make a profit, the charge increased to several times that figure, as sheep were competing with the second crop. It was no longer profitable for a rancher to lease farming lands, and the practice of shipping feeder lambs to graze on farmlands declined rapidly. At present, all study-area feeder lambs are sold before fattening. Fattening and final trimming is now done by feed lots or non-local ranchers (field data).

Predation

Predation of sheep has always been a concern of study-area ranchers. Hogs, bobcats, birds of prey, ravens, dogs, and coyotes have all killed sheep. Hogs will occasionally kill and eat a newborn lamb. Bobcats, more numerous in the timberlands west of the CHZs, will take an occasional lamb. Birds of prey will attack very young lambs, but these instances are relatively rare; one consultant felt that birds of prey accounted for less than one percent of his total predation losses. Groups of ravens will swoop down on newborn lambs and peck their eyes out. Numbers of lambs lost this way are not known. Dogs will kill or mutilate sheep. One consultant reported that, several years ago, two dogs owned by a guest of a neighbor got loose. They killed 26 sheep in less than 45 minutes. Many kills performed by dogs are for the "thrill of killing," not for obtaining food (Nesse et al. 1976:9; field data). Until recently, dog predation of sheep had been a minor concern in the CHZs. With no urban centers nearby, the area is too remote for straying domestic dogs. In the last several years, hunting dogs, some owned by legal hunters but most owned by poachers, have gotten lost and been left by their owners. These abandoned dogs, particularly the pit bulls, kill sheep.

The most active predator in the Dry Creek Uplands in recent years has been the coyote. A local place name, Coyote Ridge, suggests that these animals were once common in the area. While coyotes were present in the area during the 1800s, extensive extermination efforts had almost eliminated them by 1920. Several methods were employed to kill coyotes. Dogs were used to track them down, and the coyotes were then shot (field data). Dogs were also used to find a den of coyote pups, and the pups were killed; this practice is called "denning" (U.S. Fish and Wildlife Service 1978:53, 54; field data). Jaw traps and snares were also used. The effectiveness of a trap is dependent upon the skill of the trapper, while snares are difficult to catch with and have limited areas of application. Poisoning was a very common and more effective method for killing coyotes. An old horse or cow would be driven to a location known to be frequented by coyotes. The animal would then be shot and its carcass laced with poison, usually strychnine. Coyotes died from eating the poisoned carrion (field data).

Sodium monofluoracetate, popularly known as 1080 (pronounced ten-eighty), a powerful rodenticide developed during World War II, was first

used operationally for coyote control in 1946. It was usually injected into meat baits. 1080 served as a very sure means of killing coyotes, as scientific data and statements made by study-area ranchers attest. In 1972, the Environmental Protection Agency outlawed the use of 1080 as a means of predator control. Kills of non-target species and lack of reliable data on the efficacy of poison baiting were the reasons given for taking this action (U.S. Fish and Wildlife Service 1978:56, 57; field data).

Before its ban, study-area ranchers had been very dependent upon 1080 as a means of coyote control. It was relatively cheap; a 1,000-pound horse carcass could be treated for about 30¢. The poison took only a few minutes to apply. Opponents of 1080 argue that it is an extremely stable compound which accumulates in ground water, is toxic to all species, and kills many non-target animals (Polenick 1980:3). Ranchers feel that 1080 is necessary to control coyote populations and that its benefits outweigh the liabilities (field data). Trapping once a widely used method, has declined in recent years. About 1970, environmentalists persuaded Sonoma County to freeze trappers' salaries, making it difficult to employ competent trappers. After the passage of Proposition 13 in 1978, the county eliminated its trapping program. The Federal trapping program is still operating.

There are three coyote-extminating methods presently sanctioned by the United States Fish and Wildlife Service: shooting, trapping, and use of the M-44: a scented, spring-loaded ejector device that is planted into the ground and shoots a sodium cyanide capsule into the victim's mouth when pulled by its teeth (U.S. Fish and Wildlife Service 1978). Critics argue that these latter two methods kill many non-target species. It has been estimated that California sport hunters kill 80,000 coyotes annually (Connolly and Longhurst 1975:2).

Though all three of these methods are used in the study area, coyote predation has increased rapidly since 1972. Consultants attribute most of this increase to the ban of 1080. The curtailment of the Sonoma County trapping program is seen as a secondary cause (field data). Opponents of 1080 cite poor ranching practices for the increase. Inadequate fencing, lack of flock supervision, and untrained personnel are some of the charges listed (Polenick 1980:13). No non-lethal methods of predation control were reported in the CHZs. Defenders of Wildlife (Polenick 1980:24-25) suggest the use of guard dogs or other guard animals as one means of deterring

PLATE 8



Coyote carcass displayed on sheep fencing. (See Appendix E for discussion.)

attacks. Taste aversion, a technique in which sheep carcasses are baited with a mildly toxic salt to discourage interest in the taste of mutton, is another recommended method for controlling predation which was not reported by CHZ ranchers. Whatever the cause, all consultants reported increases in sheep lost to coyote predation (field data).

While there have been no statistical studies of predation within the CHZs, local consultants did provide estimates of losses. Several ranchers stated that, prior to 1970, predation losses for first-year lambs ranged from 2 to 30% on individual ranches. During 1980, losses were as high as 60%, and on a section of one ranch, an estimated 85% were lost (field data). Sheep ranching is not profitable with such high loss rates.

Consultants cited several examples of nearby ranchers who had gone out of business in the last two years due to predation losses. Heavy predation has turned sheep ranching into a losing enterprise. One study revealed that the predation problem was the most important reason for going out of business given by sheepmen in Wyoming, Utah, and Texas. Predation was the second most important reason given by Colorado sheepmen (McDonald and Grefe, Inc. 1978:IV-65).

Ranching Economics

Most of the individuals investing in study-area lands during the early 1900s could be placed into one of three groups: resident ranchers expanding their holdings; serious non-resident ranchers with outside income; and urbanites wanting to hunt or dabble in ranching. Until 1921, it had been relatively easy to make a profit. Land was cheap and study-area ranches sold for \$5 to \$10 per acre. In 1921, according to one consultant, "the agricultural bubble burst," forcing out most of the third group. Investors could no longer buy low-cost agricultural land, develop it minimally, and expect a profit. The neophytes had to get out. They sold to members of the first two groups (field data).

From 1910-1950, the per-acre price remained fairly constant in the \$7 to \$10 range. During the late 1940s, land was relatively cheaper than it had been during the previous decades, but in the early 1950s, ranch land passed the \$10 per-acre mark. This event resulted in the end of parcel consolidation, as it required too much capital to expand. Land purchased

in excess of \$10 per acre would not return a profit when used for sheep ranching.

Ranch lands are presently selling for \$800 to \$1,000 per acre. This recent rise in price is based on speculation. The actual agricultural value per acre, using the standards of the Williamson Act, is \$25 to \$40. Scarcity of land and increased foreign investment in all types of agricultural land are the primary cause of these inflated values. Most long-time ranchers in the area will not buy additional land because they cannot make a return on investment. They also find it psychologically difficult to pay \$1,000 for something that cost them \$10 in the past (field data).

From 1950 to 1960, expanded production of sheep exerted a downward pressure on meat and wool prices, but a change has occurred in recent years. From 1972 to 1976, costs of production in the 17 western states increased by 58%, while prices rose 69% (U.S. Fish and Wildlife Service 1978:16,17). Local ranchers stated meat and wool prices are currently at high levels. Even with favorable prices, all study-area sheep ranches are running at a loss, or their operators are not receiving full value for their labor (field data). This situation has also been confirmed by formal research (McDonald and Grefe, Inc. 1978). For a comparative economic analysis of types of Sonoma County sheep ranches, see table 7; the Mendocino Highlands unit shown in the table is located on terrain very similar to the study area.

Increasing lamb yield is the most direct way to increase income, but this requires labor-intensive techniques, such as sheltering young lambs from inclement weather; improving nutrition; introducing new breeds, increasing prolificacy; and reducing predation. The feasibility of hiring additional sheepherders to carry out these practices is dependent upon their availability and cost. Qualified herders have become scarce and expensive to retain. Part of the greater expense has been due to protective Governmental regulations on working and on-site living conditions introduced in recent years which increase overhead considerably. Most study-area ranchers cannot afford to pay full-time help, but they do employ shearing crews (field data; U.S. Fish and Wildlife Service 1978:14).

There are several other methods a sheep rancher can use to supplement his income: lease of hunting rights, sale of timber, and sale of firewood (Torell

TABLE 7
ANALYSIS OF ECONOMIC RETURN FOR THE SHEEP INDUSTRY

Type of Operation	Net Operating Margin		Operator's Earned Income		Net Cash Income		Annual Depreciation		Economic Return	
	Total	Per Acre	Total	Per Acre	Total	Per Acre	Total	Per Acre	Total	Per Acre
1,500-acre coastal unit. Full-time owner/operator	\$22,525	\$15.02	\$12,000	\$8.00	\$10,525	\$7.02	\$1,800	\$1.20	\$8,725	\$5.82
4,000-acre Mendocino Highlands unit. Full-time owner/operator	7,935	1.98	12,000	3.00	(4,065)	(1.02)	1,800	0.45	(5,865)	(1.47)
10-acre unit. Owner works full-time outside.	957	95	0	0	957	95	0	0	957	95

Source: McDonald and Grefe, Inc. 1978:VI-71.

et al. 1976; field data). Ranchers within the CHZs are using some or all of these methods with limited success. Several ranches in the Dry Creek Uplands have been converted from sheep to cattle. The switch to cattle has been made reluctantly because these animals have a lower profit potential than sheep.

In California, sheep production declined from 1,712,000 in 1960 to 915,000 in 1978 (U.S. Fish and Wildlife Service 1978:5). In 1957, there were 128,000 sheep produced in Sonoma County, but by 1976 there were only 40,000 produced (McDonald and Grefe, Inc. 1978:IV-65). This decline in production has been mirrored in the CHZs. Less than 40% of these lands are currently being used for sheep ranching, over 90% of which is in the Upper Dry Creek Candidate Habitat Zone.

The Future of Sheepranching

The future of sheep ranching within the study area looks unpromising. Lamb and wool prices have increased since 1974, while production has declined nationwide and prices should not weaken. Deterrents to continued sheep ranching include increased land values and production costs, a shortage of qualified labor, and high predation losses (McDonald and Grefe, Inc. IV-65, 66; field data). It is too capital-intensive for a new, large-scale, profitable sheep ranch to be established within the Dry Creek Uplands. Consultants stated that it would require 2 to 3 million dollars to set up a 2,000-sheep ranch (field data).

If the current trends continue, it is very unlikely that significant sheep ranching will exist in the CHZs by the year 2000. The competing land-use pressures are too great. One consultant stated that his family's ranch, purchased in the early 1900s, had always made a profit until 1980. He is currently experimenting with methods to improve his income; if these do not work, he will sell off parcels of his land and invest the proceeds in another business. Nearby ranches have already been subdivided, and the land is being used for non-agricultural purposes. A reversal of trends (a decline in agricultural land prices, higher lamb yields, or increased lamb and wool prices) could extend the tenuous future of study-area sheep ranching (field data).

The future of sheep ranching in the CHZs can be summed up in the words of a local rancher who is engaging in an experiment to reduce pre-

dition losses on his ranch:

...has sheep ranching changed? Well basically it hasn't except in the concept of varmint control. The coyote was nonexistent for 50 years. Fifty years ago they had coyotes, but when 1080 came along, this poison that our good President Nixon saw fit to outlaw-- due to pressure I'm sure from the United Humane Front, Friends of Animals and all these other assholes. When they took 1080 away from us, then you could just see the coyote population grow. Okay, it really became a threat here in 1973, but nobody realized it yet. I didn't take the ranch over until 1975...but already we knew that the coyotes were here, but no one wanted to believe it. You don't see them. In 25 years I haven't seen a coyote. Haven't seen a live coyote. But one with his foot hanging in a big ole #3 Victors, I like to see them that way. But I have not seen a live coyote. I can take you just about anywhere on the ranch and show you their tracks and show you carcasses--and that is going to change the sheep ranches. It has put almost every sheep rancher east of Highway 101 out of business. Now this is no BS. In Sonoma County there's not a rancher left east of the highway, any distance from any kind of settlement....[one family east of Highway 101] is still struggling...they have been eaten alive by coyotes. They also have a dog predation problem, but I don't have much of that this far out. There's always some. I don't have to put up with it like the downtown people do. So what it boils down to, the sheep raising in this county, or in this area, has not changed a hell of a lot in the 25 years I've been here, but it's going to. Right now I'm in an experiment that is going to cost me a bundle of money, that has cost me a lot of money, and I don't know if I'm going to come out of it or not.

Timber Harvesting

Early Use of Timber Resources

The historical use of timber resources in the area has been described by Theodoratus et al. (1979:111-114). Timber resources were largely ignored by early ranchers, who were primarily interested in opening up the country for livestock grazing. Trees, especially the abundant fir, were considered an economic liability. Through periodic controlled burning and tree girdling, sheep ranchers succeeded in altering the landscape to suit grazing needs. Consultants remembered observing or practicing tree girdling in the 1920s. Local boys were commonly hired as summertime laborers, earning 10¢ per tree. The trees were girdled by removing a strip of bark from the circumference of their trunks. The downed trees were then burned off, in most cases, along with the native brush and grasses. Aerial survey revealed portions of the landscape littered with the remains of fallen trees which, according to a consultant, were girdled 50 years ago.

Much of the tan oak, once so abundant in the area, was lost to the tanbark trade. One consultant recalled seeing the last of the tanbark removed from the Rockpile Ranch in the Upper Dry Creek CHZ when he was 12 years old (ca. 1922). The tanbark was packed out of the area on mules--four or five loaded so heavily that the mule couldn't be seen. While tanbark had its major use in the leather tanning industry, the last of the tanbark was sold to fishermen as a preservative for their nets (field data). Tanbark roads were later adapted for logging and general transportation by area residents. For a discussion of the tanbark industry in the area, see Theodoratus et al. (1979:112-114).

Some use of timber resources can be inferred in the area, however, as a steam sawmill was reported by consultants to have been on the Prusch Ranch near the Rancheria CHZ. The mill apparently operated until the early 1930s, but data are lacking regarding the exact location, ownership, and use of this mill by local ranchers. Study-area settlers certainly used their redwoods for shakes, shingles, fence posts, and finished lumber, but they did not sell it in quantity.

While many ranchers saw timber land as potential pasture, one notable exception was Casper Ornbaun, an early owner of the Rockpile Ranch in the

Upper Dry Creek CHZ. He saw his ranch as a long-term investment in both land and timber. A nephew of Ornbaun's recalled that he wouldn't permit girdling fir trees on his property.

Even way back in the 1920s, he (C.O.) wouldn't do that. He said, 'Don't touch a fir tree.' He was looking that far ahead, and it finally paid off. At that time you couldn't give fir timber away. It wasn't worth chopping down. (field data).

One consultant used the "Jones Place" as an example of the economic liability of fir as late as 1939. In that year the place sold for \$4.00 an acre, because the southern half was in fir and couldn't be given away (field data).

Casper Ornbaun was a Mendocino County rancher's son who practiced law in San Francisco. In the course of representing his father's interests in a timber dispute, Casper had the opportunity to research the timber industry. While in Ukiah he also researched land titles.

Besides looking after this case I spent a lot of my time in an abstract office and learning (sic) as much as I could about the titles to this land. This line of study was a great help to me in the practice of the law, and in my future investments (Ornbaun 1956:8).

In his unpublished autobiography, Ornbaun reported that the price of timber fluctuated considerably. Before going into a slump of several years, timber prices peaked at \$1.25 per thousand board feet in 1909 (Ornbaun 1956:4). Another slump in timber prices followed World War I, and timber could be had quite cheaply at tax sales during this period. Ornbaun's observations of these price fluctuations apparently contributed to his far-sighted timber investment in the Rockpile Ranch:

...as time passed the value of land and timber became more valuable and the long time investment paid off. At this point I want to emphase (sic) the fact that there are a very small percentage of people that are willing to hold on (sic) an investment until the proper time to sell (Ornbaun 1956:6).

"The proper time to sell" proved to be after World War II.

The Post War Boom

The post World War II building boom dramatically increased the market for timber, especially for Douglas fir. This potential source of revenue

was not long overlooked by the local tax assessor. Consultants concurred on the negative environmental impact of the county tax assessments levied in the early 1950s. In 1951, property assessments included market value of timber, even in areas where timber was not being harvested. Some ranchers in the study area were taxed in excess of their gross income from sheep ranching (field data). Most ranchers were forced by economics to log 70% of their standing timber in order to receive an exemption on the remainder. Local newspapers reported the criticism of this tax:

"The tax critics objected to it on grounds that it discouraged conservation by pressuring owners into premature logging...the tax forced some timber owners to sell more of their trees than was wise practice, not only so that they could pay the tax but, in some cases, to get rid of 70% of all trees larger than 16 inches in diameter and thus win exemption for at least some of the remaining growth" (Press Democrat 26 July 1953).

Ranchers were known to give the timber away to avoid paying their taxes (field data). According to consultants, the landscape was radically altered by logging in the early fifties, causing much of the erosion visible today. One consultant reported he had hoped to save some of his redwoods and to protect Galloway Creek, but it was not possible. He blamed poor logging practices for ruining the fishing on the creek (field data).

In 1948, retired Oregon lumberman Paul Kelly was amazed to view large untapped timber resources on a trip to northwestern California. On his return home to Prineville, Oregon, the veteran lumberman told his wife that the timber in California was so cheap he was almost afraid to buy it. In the process of acquiring the timber rights to this wilderness, the price of timber increased from \$.50 to \$2.50 per thousand board feet (field data). This isolated timber preserve was later described in a local newspaper:

"The bonanza is timber--an estimated billion feet of virgin redwood, douglas fir and sugar pine in a vast area whose inaccessibility has padlocked it for a century against exploitation (Press Democrat 6 August 1953).

With his partner, Lee Evans, Kelly purchased timber rights to 24,000 acres of the landlocked Lindsey tract in Mendocino County at a tax sale. From 1950 to 1953 Kelly was involved in the difficult task of acquiring the rights-of-way for his road from Cloverdale to the timber area, a

distance of almost 30 miles through rugged sheep country (U.S. Army Engineers 1969:n.p.).

Maintaining a low profile, the Kellys quietly negotiated with the sheep ranchers for rights-of-way through their properties. One consultant recalled that "Kelly never said what he was up to, but knew right where his road was going to go. He gave them (ranchers) about twice as much as the most they thought the land was worth, \$7 to \$8 an acre." Costs of purchasing rights-of-way exceeded \$400,000 (field data). Negotiations with the owners of the Flat Ridge Ranch and the Rockpile Ranch in the Upper Dry Creek CHZ were particularly lengthy and delicate, lasting for one-and-a-half years. For access to Flat Ridge Creek, the Kelly Company conceded to deed to the owners of Flat Ridge Ranch 5,000 acres and to build a branch road into the heretofore inaccessible ranch. The acreage negotiated in the Flat Ridge deal was acquired from a neighboring rancher for what the Kellys believed was an exorbitant price: \$200,000. While these sheep ranches were remotely situated, the owners were not unsophisticated. To the Kellys, tree girdling by the sheep ranchers demonstrated their lack of awareness of the value of timber. This, combined with the Kellys' evaluation that the land was only suitable for raising sheep, led them to expect a lower capital investment in rights-of-way purchases. All property owners adjoining Kelly Road were granted access through locked gates, and the road was bordered in sheep fencing (field data).

Construction on the road began in the fall of 1953. Four months into the project, Paul Kelly died, and his wife Lucile took over the company as its president. Under her direction, the road was completed two years later in 1955. Ceremonies in Cloverdale dedicated the road to Paul B. Kelly. It operated as a toll road for logging trucks at 50¢ a thousand board feet until 1969, when the Kelly timber harvest was completed. Mrs. Kelly then sold the road to a Cloverdale lumber firm. Sonoma County was offered Kelly Road as a gift in 1976, but the offer was refused because of excessive costs to bring the road up to county standards and to maintain it. One consultant estimated these costs at 1 million dollars per mile. In 1979, "Kelly Road was donated to the U.S. Government by Masonite without cost. The entire road was accepted in lieu of purchase of that portion falling within the project boundaries" (Sonoma County Public Works Department n.d.:file).

Current Harvesting Practices

The timber tax law was finally altered in 1976 with the passage of Assembly Bill 1258, the Forest Taxation Reform Act. This yield tax was described as follows:

A yield tax on timber simply means that all timber while standing is exempt from ad valorem taxes on its commercial value and is subject to the yield tax only at the time of harvest (State Board of Equalization 1977:1).

Today study-area property owners manage their own timber resources, in most cases doing their own logging. Competition for timber in nearby mills has decreased to two mills in recent years, according to consultants. Timber harvested by the Harwood Corporation, a Mendocino-County based company, is processed at the company mills in Willits and Branscomb.

One consultant operated a mill for many years in Santa Rosa, where he processed his own timber harvested from the Upper Dry Creek CHZ. When the city of Santa Rosa expanded around his mill in the 1930s and forced its closure, this consultant set up a small mill on his ranch property. Using a tractor engine for power, he milled the lumber on site and hauled it to his lumber yard in Santa Rosa. This timber-processing continued until 1978. Firewood is currently cut on the property and sold in Santa Rosa by this consultant.

Timber-harvest plans are required by law for any logging operation. Consultants who harvest their own timber develop the plans for their property in consultation with a state forester. The law further requires the restocking of harvested areas within five years of the date of harvest. The California Division of Forestry has classified the area which includes the candidate/critical habitat zones as "Site 3" (sites 4 and 5 are marginal timber areas) (field data).

Property owners attempting sustained-yield timber production appear conscientious about preservation of the landscape. One consultant who harvested timber in the Dry Creek CHZ reported that he is currently planting ponderosa pine, Douglas fir, and coastal redwood in restocking his property. Another consultant has managed to preserve a stand of virgin redwoods (reportedly 6 to 9 feet in diameter) in spite of harvesting timber three times during his lifetime. This consultant's grandfather purchased a 210-acre tract of redwoods for \$6,000 in the early part of this

century, when remote stands of redwood were of little value. This redwood stand, known as the Otis Tract, contained an estimated 9 million board feet of lumber, of which 6 million board feet still remain. Consultants were critical of some logging operations done in the past by professional timber contractors. One consultant described a "bum logger" who was destructive when logging property in the Rancheria Creek CHZ, clear-cutting and dozing the landscape. With improved logging practices, however, some landholders have turned their timber harvesting over to professionals.

Property owners fear future Government regulation of their timber resources. Rather than have their timber harvests limited or restricted altogether, ranchers sell their timber rights even though, as one consultant put it, "It kills you to see them take the trees." A property owner in the Rancheria Creek CHZ has sold the timber rights to his 4,000 acres to a Mendocino County-based lumber firm. Under an agreement with the owner, the lumber company has held title and paid the taxes on the land for the past three years. The owner will reclaim title in July 1981 and resume responsibility for the taxes at that time. Logging on his property will continue intermittently over the next several years.

Woodcutting is done by consultants in the late spring and summer. Firewood is cut by consultants for home use and for sale by the cord. Friends are permitted to cut firewood in reciprocal trade arrangements. Consultants also sell wood products which they refer to as "split stuff," including fence posts, shakes, and grape stakes.

A lumber firm based in Branscomb, Mendocino County, has owned the former Rockpile Ranch in the Upper Dry Creek CHZ for four years. The owners describe the Rockpile acreage as a marginal timber area which they are developing for multiple use: timber, cattle, and hunting. "The old timers tried to change it to grasslands and we want to put it back [into timber]" (field data). The company is currently planting Douglas fir, Monterey pine, and ponderosa pine. The pine trees are planted to shade Douglas fir and to alter the climate.

Rockpile Ranch was logged nearly 30 years ago when the timber tax was imposed. Timber harvests on the ranch's secondary growth are nearly completed. The owners estimate that they can return to "thin" Rockpile Ranch timber every 5 to 10 years, depending on the rate of growth. Roads have been constructed to facilitate harvesting. The company is not

harvesting hardwoods (madrone, tan oak), leaving them to encourage habitat for native birds. The softwoods (pine and fir) are being harvested for saw logs. Some older growth redwood has been removed from the Rancheria Creek CHZ by this company (field data).

In the future, timber-company consultants predict further development of timber resources by individual ranchers, though not necessarily through owner harvesting. Timber companies may be contracted by landowners to manage harvests due to the complexity of regulations and liability for failure of compliance. These consultants see a potential future use for hardwoods in fiber and power. The energy potential is in wood-fired, steam-generated electricity. Once they are harvested, economic feasibility will determine the regeneration plans for hardwoods, the abundant native growth in the area (field data).

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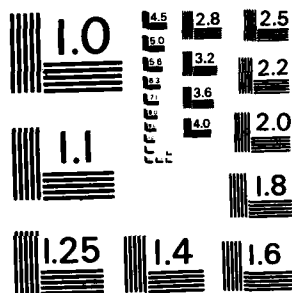
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Hunting

Hunting has historically been one of the primary attractions to the study area. An early owner of the Rockpile Ranch indicated in his autobiography that this property was acquired for hunting purposes. "When I first started to purchase land in 1911 a corporation was organized, and there were about fifteen shareholders. We first started to organize a hunting club" (Ornbaun 1956:6). According to knowledgeable consultants, game was always abundant in this remote region of the country.

The owner of 4,000 acres in the Rancheria Creek CHZ hunted in the area for over 30 years, as did his neighbor in that zone, before both men bought their respective ranches (field data). These owners maintain permanent residences elsewhere, visiting their ranches frequently and vacationing there in summer months. It was fishing that first attracted the father of the present owner of the Cooley Ranch in the Upper Dry Creek Zone. The senior Cooley, who had fished, hiked, and hunted there as a boy, purchased the ranch when it came up for sale in 1910 (field data). Though recreation motivated the purchase and remained a significant factor in land use, the property has functioned economically as a sheep ranch.

Beginning in the late 19th century, sheep ranchers leased exclusive hunting rights on their lands. They would negotiate the number of men per club on the basis of how many deer the rancher wanted taken (restricted by law to two deer per season per hunter). Most clubs were not formally organized, but were groups of men who enjoyed hunting together. A deer hunting club reportedly camped annually on the former Hood Ranch in Upper Dry Creek from 1910 to 1929. Matthews' Elk Range Gun Club is the earliest one reported; it was founded in 1887 (field data).

Hunting privileges were also a part of the cooperative exchanges between the "mountain people" (residents of the Dry Creek Uplands) and the farmers of the lower Dry Creek Valley. One consultant recalled the "mountain people" picking grapes for his father in order to pay for winter food supplies, which consisted of 10 to 15 sacks of flour and sacks of sugar and coffee. The farmers were then invited into the area of the mountains for hunting (field data).

According to a consultant, hunting guests during the Depression years

probably helped his family to get through those hard times. His father converted a homesteader's house on their sheep ranch to accommodate visiting hunters during deer season. A large screened-in sleeping porch was added on to the small structure, which was equipped with a wood cookstove and an indoor handpump for water. The guests were most often doctors from Piedmont, friends of the sheep rancher's brother, who was himself a physician (field data). It is not known what kind of exchange was made for this hunting accommodation.

Consultants familiar with the area's history remarked on the changes they had observed in hunting since earlier in the century. Hunting was formerly a family affair, in which the entire family took part. Groups participated in outings which lasted several weeks. During that time, the family would camp out, enjoying the recreational activities associated with outdoor living in the summer. Consultants remarked that those were the days before recreational vehicles.

Pig Hunting

Domestic pigs, raised on the ranches of the area since the arrival of the homesteaders, were the ancestors of the wild-game pigs hunted today in the study area. One consultant remembered assisting the tenants at Rockpile Ranch in "gathering up" 500 head of hogs about 1910 (field data). Although they were allowed to run loose, the hogs were tamed by regular feeding and were "broke to drive" like sheep. They were rounded up twice a year for slaughter or castration (field data). There gradually evolved a feral pig population hunted for both food and sport.

Ranchers in the 1920s attempted to eliminate the hogs in the process of building up their sheep-ranching operations. One consultant recalled that, when he was "still pretty green," he branded, then turned loose, all the wild hogs he found. When he proudly told his father of this accomplishment, the more experienced rancher ordered him to "go find them and kill every last one of them" (field data). This order stood for the next 30 years on that Upper Dry Creek ranch. A consultant in the Rancheria Creek CHZ told of his grandfather hiring a cowboy to round up every hog he could find and shipping them off to market.

The sheep ranchers' efforts at controlling wild hogs were undermined

by a neighbor who experimented with encouraging the sporting breed. He brought an Indo-Chinese boar from Catalina Island which he bred to four domestic sows. The boar was returned to the island in exchange for another boar, which was bred to the offspring of the sows. The next generation was then turned loose for game. Neighboring sheep ranchers objected to this sport-breeding when their lambs were killed and their pastures torn up from the rooting (field data).

Wild pig hunting is today one of the principal recreational features of the candidate/critical habitat zones. Russian hogs have been introduced on the Rockpile Ranch for their sporting qualities of "meanness" as well as their ability to retain fat during the lean months of summer. Owners of the Rockpile Ranch have introduced 20 bred females of this variety (field data). A rancher in the Rancheria Creek CHZ reported that he raises pigs which he turns loose, "just for sport."

Although pig hunting is not regulated by season, it is most popular in the winter months, when the animals are fattened on acorns and pepperwood nuts. One consultant simply described the best time to hunt pigs as "when the grass is green." Taste of the meat is affected by their diet and weight. The best-tasting meat is from animals that weigh under 150 pounds. The meat of 300- to 400-pound boars smells and tastes too strong, but the heads are taken for trophies (field data).

Wild pigs are hunted by ranchers for food, sport, and to control their numbers. Although the meat contributes to their subsistence economy, sheep-ranching consultants expressed their concern over the presence of this game animal on their ranches. Pigs pose a threat to lambs, and their rooting is destructive to grass cover. The rooting destroys the seed, inhibiting regeneration of grasses on as much as 4 to 5 acres of pasture at a time. Pig rooting areas, visible from the air, were aptly described by a consultant as looking "like a cultivator went through the area."

One consultant in the Dry Creek CHZ complained of wild pigs eating the grapes from his vineyard. He believed the pigs live on Corps of Engineers' property nearby and periodically raid his vines from there. The owner leases pig-hunting rights to a Cloverdale hunting guide. He has experienced problems with wild pigs over the past 20 years (field data).

An Upper Dry Creek CHZ consultant reported that pig hunting has become commercialized in recent years. A nearby ranch is believed to raise brood sows in pens, releasing the offspring for hunting purposes. The rancher reportedly charges \$100 a day for hunting rights and an additional \$100 for each animal bagged. One consultant believed that most of these hunters were from the Los Angeles area.

Consultants indicated that their greatest objection to the wild pig population is the poachers that the animals attract to the area. Besides trespassing violations, the ranchers also blamed poachers for losing their dogs and leaving them behind to kill sheep for food. Consultants reported that night-hunting is common among poachers. Pit-bull dogs have become popular for this type of hunting for their noiseless tracking and fierce killing abilities. Consultants reported commercial advertising in a hunting and fishing magazine which displayed a picture of a wild hog and listed the hunting guide's fee at \$250 a day. The guide was apparently known as a poacher doing commercial hunting business in the area (field data).

Deer Hunting

Deer hunting in the area is popular and more compatible with the ranching economy. The introduction of sheep ranching established a symbiotic relationship between deer hunting and sheep ranching. The practice of annual controlled burning to increase sheep pasture also encouraged the deer population. A consultant noted that "This [burning] certainly makes a difference in the kind of deer you have--healthier, huskier. Even when we had small burns, you see signs of deer coming in."

Deer hunting is restricted to late summer and limited by law to two bucks per hunter per season. The Rockpile Ranch owners further limit hunters on their property to three-pronged bucks. These owners have been impressed with the abundance of game, particularly deer, on their ranch (field data). Consultants in the Rancheria Creek CHZ differed in their observations of the deer population. One consultant reported that 1980 was the first season in 30 years of hunting in the area in which he did not get his limit, and, in fact, did not even fire a shot. Another consultant in that zone, who does not permit hunting anywhere in the

vicinity of his ranch headquarters, daily encounters large numbers of deer grazing in the open near his house. He believes the deer know they are protected there (field data).

Game Birds

Game birds, such as quail, doves, and wild pigeons, are hunted in all three CHZs. Consultants reported that wild pigeons are migratory and unpredictable; their numbers may disappear from the area for as long as five years before returning again. Owners of one ranch in the Upper Dry Creek CHZ released wild turkeys in hopes of propagating flocks for hunting. These attempts were apparently unsuccessful (field data).

Hunting Rights

Hunting rights may be sold or exchanged both formally and informally between landowners and hunters. Consultants considered hunting rights to be an actively negotiated item in the terms of any sale or lease of property (field data). The sale of hunting rights can prove an economic boon to a sheep rancher facing financial losses (field data). Consultants reported an average annual income of \$1.00 per acre for hunting rights. Several consultants plan to hold out as long as possible against the sale of hunting rights, which pose a threat to the ranchers' privacy and sense of autonomy. One consultant stated that grazing and hunting leases might be a best bet for his children after he's gone. But for now, he values his privacy too much (field data).

For a rancher in the Upper Dry Creek CHZ, the sale of hunting rights offers some security against trespassers on his ranch. He leases out two parcels, totaling 3,000 acres, which are strategically situated on his ranch near access points to the main road. The hunters, who are often deputized, are very protective of their hunting claims, and their presence thus minimizes illegal entry onto the ranch property (field data).

The Rockpile Ranch is subject to hunting by the owners' company employees, their families and friends. Hunting on the ranch also serves a public relations function when the company entertains guests (field data).

One consultant in the Rancheria Creek CHZ sells hunting rights to his

property for \$1,000 a year per member. These rights are reserved for a group of seven friends who form a hunting club. If opened to San Francisco hunting clubs, this rancher believes his property could earn him \$30,000 a year in hunting claims (field data). Elsewhere in this zone, hunting is informally arranged among friends and family. These arrangements often include exchanges for labor and commodities, such as fresh vegetables or seafood (field data). Some hunting alliances are traditional in nature, spanning three generations.

Several parcels in the Dry Creek Zone are hunted by clubs or professional hunting guides. The close proximity to the Warm Springs Dam and easier access are reasons given by consultants for increased hunting--including poaching--in the area. Hunting cabins are located on several parcels in and around this zone (field data).

Fishing

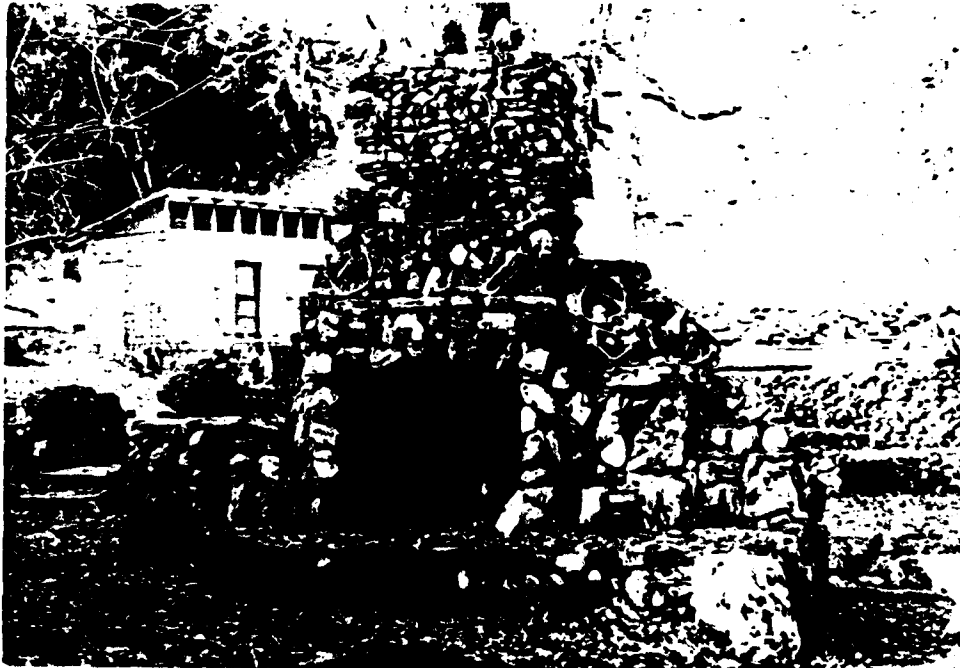
Salmon and steelhead are the most common fish caught in the area. Fishing in the numerous small creeks of the candidate/critical habitat zones has historically been very popular, especially on Dry Creek and Galloway Creek. One consultant in the Upper Dry Creek zone dammed a small creek on his property to create a one-quarter-acre lake for raising trout. The fish died off from disease, and the lake has been used recreationally by the owners for swimming (field data).

Consultants reported a decrease in fishing in recent years. Among possible explanations for poor fishing offered by consultants was that squawfish, or hardmouth, might be eating young salmon and steelhead. Also, logging operations in the Galloway Creek area have interfered with fishing by increasing the stream's turbidity (field data).

Recreation

Some of the early patents were probably designed to supply vacation spots for local Sonoma County families, while later claims were made with

PLATE 9



Recreational structures in the Upper Dry Creek Zone. Deer antler and rock fireplace; rock-lined pool in background.

an eye toward a mixture of investment potential and recreational use. At least one study-area family took in paying summer guests after 1909, and George Matthews, Jr. ran a private hunting club for his friends and a summer camp for his relatives. Many of the other families also had summer guests.

For the most part, consultants who currently own property in the study area did not purchase their land as a strictly business venture, although owners consulted expressed a desire to make their ranches pay for themselves (field data). In several cases, this has involved the development of the recreational potential of the properties.

Some owners in the Dry Creek CHZ are considering plans to develop hunting cabins on their properties for recreational rental. A Rancheria Creek CHZ consultant with other property just outside the Dry Creek zone hopes to subdivide and sell the latter parcel for recreational homesites, pending changes in the current zoning laws (field data). His Rancheria Creek property, however, will be maintained for private use and family recreation.

A part-time resident in the Rancheria Creek CHZ intends to combine his recreational values with limited recreational development. Since purchasing this property three years ago, he has installed two deep-water wells in order to insure "water on demand" (field data). He has also converted an outbuilding into a residence for himself, while renting the original ranch house to a full-time resident. Future development plans include the creation of a small lake for both active and contemplative recreational purposes. This consultant's ranch serves as a retreat from a demanding job in Stockton. His desire is for the ranch to pay for itself and provide him with a retirement income within 10 years. He hopes to achieve this goal through small development projects which enhance his personal recreational values (field data).

Similar values were expressed by part-time residents of a ranch in the Upper Dry Creek zone. These owners were attracted to the area 40 years ago by its rugged isolation. Rather than "modernize" their ranch, these people live in two worlds, one of which offers them a lifestyle of independence and simplicity (field data). They live on their ranch without utilities, raising their own produce and meat, which includes wild game.

Because they are part-time residents who maintain another home in Santa Rosa, their ranch, although economically subsistent, serves a recreational function for the owners.

A large ranch in the Upper Dry Creek zone was purchased in 1910 for its recreational attraction and maintained as a sheep ranch to pay for itself, while providing an income for its owners (field data). This ranch is the site of the former Hood's Hot Springs. According to consultants, the hot springs were developed for private use and have undergone improvements over the years. A three-sided concrete pool has been built against the hillside to retain the hot spring water, which comes out of the ground at 105 to 110 degrees and cools to 95 degrees in the pool (field data). Showers and changing rooms have been added along with ornamental and functional rock work in the area of the hot springs. Cemented rocks form walls, patios, a barbeque, an archway, fountains, benches, a chair, and mosaics which spell out Bath and Shower near the bath house (field data). Data are lacking on the extent to which the hot springs were historically and are currently being used. It may be assumed that the ranch owner and the lessee, their family and friends, have access to the facilities.

Owners of the Rockpile Ranch expressed their intentions to develop the recreational potential of that ranch. Recreation is one component of a three-part plan to provide an economic return to the lumber company which owns the ranch. Wildlife enhancement is underway in the improvement of habitat for various game species. Game animals, such as the Russian hog, have also been introduced. One thousand acres along Rockpile Road has been reserved for agricultural zoning by the company, with a view to possible future recreational development. The potential subdivision on the 1,000 acres under current zoning is for 50 parcels of 20 acres each. Rockpile Road would provide access to the area, but no other parcel improvements (such as water and utilities) would be offered. The company president explained that "we aren't trying to appeal to people who want those niceties" (field data). A similar recreational development, which would include portions of the Dry Creek CHZ, is planned for a 1900-acre parcel near Lake Sonoma.

Recreation has been a major feature of the Dry Creek Uplands, attracting the regional population to the area as visitors. Many present-day CHZ landholders are former visitors drawn to the area by such features as hunting, fishing, and scenic remoteness. The economic demands of maintaining

their recreational values and lifestyle often require owners to seek at least part-time residence and work elsewhere. Nevertheless, residents expressed their hope of making their properties pay for themselves, allowing them full-time residency and year-round enjoyment of their land.

A Cultural View of Residents and Owners

The Dry Creek, Rancheria Creek, and Upper Dry Creek candidate/critical habitat zones lie within a relatively remote and hilly area which, for convenience, is referred to here as the Dry Creek Uplands. For more than a century, sheep ranching has been the dominant utilization of the area. Over the past decade or so, in part as a consequence of the development of the Warm Springs Dam and in part in response to broader socioeconomic trends, sheep ranching in the Dry Creek Uplands has come to an impasse. The ranches are in a period of transition and so, too, are the ranchers. This section focuses on the cultural dimension underlying the current period of transition.

In this discussion, the concept of values is used as an organizing framework. The utilization of the Dry Creek Uplands is portrayed as the result of an interaction between two distinguishable sets of culturally defined values attached to the land. These are economic values (the value of land as a speculative commodity; the value of land in terms of ongoing return from investment) and lifestyle values (the aesthetic value of land; the perceived capacity of land to support a desired lifestyle). Throughout the historic period, discussed in Chapter 4, and in the present, the definition of these values and the interaction between them has been continuous and stable. To the extent that this continuity will persist into the future, an understanding of the cultural valuation of land in the Dry Creek Uplands can provide a basis for estimating future cultural utilization of the area.

The Image of the Dry Creek Uplands

There has been considerable uniformity among the people who developed the major ranches of the Dry Creek Uplands. For many of the people who settled in the area or otherwise participated in its development (including those offspring of ranch founders who became involved with their parents' land), the attractiveness of the image of the Dry Creek Uplands as a private and unspoiled area associated with possibilities for a romantically rustic yet ultimately profitable lifestyle was an important incentive. Presentation of the character of the area in these terms proved to be a recurrent theme in

field investigations. As examples:

One consultant, now 80, spent his childhood on a ranch in the Dry Creek Valley. He recalled the period around 1915 when sheep ranchers from the Dry Creek Uplands worked on his father's ranch in the summer to accumulate their "grubstake." In reciprocation, the ranchers invited his father to hunt on their lands, and the consultant combed the hills with the ranchers' sons. During the interview, he consistently referred to these ranchers as "mountain people." His use of this term emphasized the ranchers' cultural distinctiveness. From his point of view, they were hardy and frugal people who knew and maintained the country well:

They lived off the land, killing deer for meat, but never abusing the game. There were game wardens in those days who rode the hills looking for poachers. The game wardens would eat supper with local families. Often they were served deer meat. The families knew the wardens knew they hunted only for subsistence.

These ranches didn't change hands very often. Most of the children were born and raised and died on the same land. They would come to town to shop only when it was necessary. They never traveled the roads in winter because their iron-tired vehicles would cut the roads up. If someone was sick in winter and had to be taken to a doctor, they rode horses out following the old Indian trails.

The country has been left to go to pot for so long [in recent years]. The foresters put out fires as soon as they start. The country has become brushy, cutting off the food supply for wild animals. The mountain people tried to tell them about that--that it was necessary to burn off the land. Now they are doing it from helicopters!

One couple interviewed for the study were members of the generation of radicals and intellectuals who "dropped out" in northern California. From 1970 to 1976, they lived on a remote parcel of land on Bradford Mountain in the lower Dry Creek Valley, where they cultivated relationships with old-time residents. Speaking of one family in particular, they said:

They know the hills and love them. [Their son] rejected a scholarship to architectural design school because he loved the valley.... Part of [the Dry Creek Uplands] is the back country for the old Dry Creek people--where you camp out in the hills.....They hunt wild pigs there in deep canyons.....There is always some wonderful pig that they failed to get year after year, a great pig that has killed ten [hunting] dogs. They are like a famous bear in the Ozarks.

In general, they said, "there was a kind of respect for those crazy enough to live back there where there is no water, raising goats or whatever."

An advertisement placed in the window of Golden Realty, Geyserville, in January 1981 described the property which was formerly a portion of a large ranch west of the Rancheria Creek CHZ as:

160 A. Lake Sonoma Ranches (Wickersham Ranch).
Wilderness - Top of the World Parcel. Can even
see the Pacific. Hunting paradise.

owner financing \$177,800

These ethnographic snippets represent the outsider's image of the Dry Creek Uplands, occurring as spontaneous narrative and as contrived merchandising. The image has been relatively constant for a century. It has influenced the acquisition of property and settlement.

The Culture of Dry Creek Uplands' Sheep Ranchers

There is a considerable correspondence between the image of life in the Dry Creek Uplands and the actual culture of the area. First, the usual format of western sheep ranching dictates certain lifestyle features. Profitable sheep ranching requires large (ca. 4,000+ acres) tracts of land and, excepting brief periods of the year when extra hands are recruited for such tasks as shearing, a small work force. On all but the largest ranches, daily tasks are performed by a nuclear family occupying the ranch as owners or as tenants. Sometimes the husband works the ranch alone, his wife and children residing in a second home in town. Usually, husband and wife work as a team, for companionship as well as by necessity. Children joining the family work force have made it possible to expand ranch holdings at less expense, but they seem not to have been pressured to participate. The result is a dispersed settlement pattern and a way of life characterized by physical isolation and privacy.

Ranchers in the Dry Creek Uplands are positive in their evaluation of their way of life. Though ranching clearly entails isolation and physical hardship (due to inclement weather and, until quite recently, lack of convenient vehicular access) and, for the less affluent rancher, periods of economic hardship (many ranchers must supplement ranch income with off-ranch wage labor), no informant complained of this.

Sample statements which reflect a positive evaluation of ranch life are:

It's been a good life. We're not sorry. Never got rich on it, but we had enough to eat--most of the time. (A former tenant of several ranches in the area from 1937 until 1979).

(Question: What is involved in choosing to raise sheep rather than fruit or grapes?)

Darn if I know. I always liked sheep. Some years they was good and some years they wasn't. Some years I had to cut wood to earn a living. (A former owner of a ranch near Skaggs Springs, who tenanted a ranch in the Rancheria CHZ in the 1920s and 30s).

(A consultant, on the time when he had to ride in to his ranch in winter on horseback) ...we didn't mind it any. In those days, too, we didn't live as fast as you do now. Now if it took you a couple of hours to go 7 or 8 miles it would bother you, but then it didn't.

A striking feature of the interviews conducted with ranch owners, tenants, and other local residents associated with the Dry Creek Uplands was the absence of negative statements about others. The rich did not speak ill of the poor, nor did owners of tenants, rural residents of town businessmen, or individuals of individuals. Even individuals with strong pro- or anti-Warm Springs Dam sentiments and political involvements were restrained in their characterizations of their opponents and make a point of indicating that political conflict has not interfered with their ongoing personal and professional relationships. It may be that over the years of dealing with officialdom regarding the Warm Springs Dam, people in the area have become adept at controlling the information they reveal to outsiders. Even so, it is likely that the pattern is indigenous and cultural, arising from a pattern of interaction and shared sentiments extending beyond the boundaries of the Dry Creek Uplands. This point will be amplified below.

Two exceptions to this pattern are significant. Objects of scorn and ire-- the Federal Government, Corps of Engineers, and other governmental agencies-- are portrayed as insensitive agents which interfere pointlessly, ignorantly, and often deleteriously with the conduct of local life. And anyone who, in the view of the speaker, misuses or abuses the land itself is incisively and spontaneously criticized. Explaining that he had terminated the lease of some of his land to a cattleman who wanted to run too many head per acre, one CHZ rancher said:

If you lease (the land) to somebody, they're going to rape it. That's the name of the game.

And expressing concern about logging companies buying local ranches, he said:

Loggers, that's all they see is logs. They buy a ranch, log it, and get their money out. Why keep the ranch? They subdivide it...If I like something well enough to buy it, I could never let it go.

Similarly, a Rancheria Creek CHZ landowner, while praising the Harwood Company's logging practices on the former Rockpile Ranch, characterized the person who exploited timber resources on property near his own as a "bum logger" who "really made a mess." Ranching results in extensive alteration of the landscape. The expansion of sheep ranches often entailed the conversion of land into pasture by girdling trees and controlled burning. This alteration, however, is not perceived by ranchers as detrimental to the environment or as inconsistent with the value placed on a ranching lifestyle in a natural setting.

In summary, the ranching way of life is positively evaluated, interpersonal and intergroup relationships associated with it are apparently amicable, and abuse of the land is a sin which provokes strong condemnation.

Some salient characteristics of the owners of properties in the three candidate/critical habitat zones are condensed in table 8. The table does not include incidental data collected on various neighboring owners in the Dry Creek Uplands, although it may be said that they, too, appeared to conform to the general patterns to be discussed.

Many of the founders of present-day ranches and their successors have been educated men with professional careers. Several had gained an advanced education and established themselves in other careers before becoming involved in ranching, either as inheritors or as purchasers. Entry into ranching was clearly a matter of personal choice, a choice which made economic sense, but one clearly reflecting lifestyle preferences. As owners have both the financial and educational means to leave ranching should it prove unattractive, continuing to be a rancher is also a matter of personal choice.

Perhaps because commitment to personal choice is so great, the transmission of ranches within family lines is uncertain. Fieldwork uncovered several cases of ranchers who were the only members of their families to enter ranching, and ranchers whose offspring all found their way into non-ranching occupations. Though most ranchers say they would like to transmit their ranches to their children and some have prepared trusts to facilitate this, they cannot necessarily predict that their children will choose to continue in ranching, nor, apparently, do they pressure them to do so.

Ranchers emphasized the independence and self-sufficiency associated with ranch life. For example, one rancher stated that he prefers the personality associated with ranch life over the urban type. He described ranchers as being tougher and more independent, with a down-to-earth quality

TABLE 8
SELECTED CHARACTERISTICS OF OWNERS AND PROPERTIES IN THE CHZs

	Utilization	Purchase Date	Tenancy	Background: Motivation for Purchase
<u>Rancheria Creek</u>				
Owner: A	Hunting; timber harvesting under forest-management plan.	Ca. 1960	Lives in Santa Rosa	Owner leased hunting rights to property before purchase. Intends to enhance and preserve natural character of land. Property south of Dry Creek CHZ bought for investment; plans inhibited by zoning changes.
B	Sheep ranch until 2 years ago. Contemplating appropriate new utilization. Timber harvesting.	By owner's grandfather ca. 1920	Resident owner-rancher	Owner's grandfather bought ranch as investment. Owner's father, desiring ranching way of life, received ag. degree from Davis; learned sheep ranching from tenant. Present owner has college education, ranches as preferred lifestyle.
C	Harvesting timber; when harvest complete, land title reverts to Owner D.	Ca. 1978	(See D)	(See D)
D	Former sheep ranch; will lease for cattle grazing. Leases hunting rights; timber harvesting.	Ca. 1966 (resumes ownership July 1981)	Lives in Sebastopol; ranch used for summer family vacations. Second house occupied by caretaker.	Owner's family hunted on land since 1920s. Previously owned by S.F. physician.
E	Recreation; may rent to vacationers.	1977	Works in Stockton; spends several days/week on ranch. Second dwelling occupied full-time by caretaker/friend.	Physician owner hopes to preserve rural character of ranch while making it self-sufficient. Goal: use ranch as retreat now, as retirement income/residence later.

TABLE 8 (continued)

	Utilization	Purchase Date	Tenancy	Background: Motivation for Purchase
<u>Rancheria Creek</u>				
Owner: F	Hunting preserve	Ca. 1950	None	Owners had long-term family ties to area. Bought land for hunting. Now live in Hawaii.
<u>Dry Creek</u>				
Owner: G	Former sheep ranch; now cattle and vineyard. Leases hunting rights.	1959	Lives in San Francisco; vacations on ranch. Relatives and tenant family work ranch year round.	Physician owner bought ranch so nuclear/extended family "could experience the ranching life and absorb its values."
H	Hunting, recreation; plans to rent to vacationers.	Unknown; recent	Lives in Cloverdale; vacations on property.	Self-employed; university degree in anthropology; wants to live on land and maintain most as "open space." (Previous owner used land for hunting and weekending.)
I	Hunting; recreation.	Unknown; recent	Lives in San Rafael; uses property week-ends and vacations.	Bought land from San Francisco fire captain who used property for recreation and hunting.
J	Sheep ranch; may convert to cattle. Ranch extends into Upper Dry Creek CHZ	1930	Lives in Cloverdale; tenant on ranch.	Owner a retired businessman; purchased ranch for "avocational purposes" (according to neighbor).
K	Sheep ranch; also lease nearby land for grazing.	Unknown	Lives in Petaluma, makes frequent trips to property; caretaker on ranch.	Owners are son and daughter of Owner D. Due to predation problems, son is seeking grazing land outside area.

TABLE 8 (continued)

	Utilization	Purchase Date	Tenancy	Background: Motivation for Purchase
<u>Dry Creek</u>				
Owner: L	Former sheep ranch; has leased to Owner K for grazing.	1976	None	Seven partners expect to sell land in undeveloped 100-acre parcels. Spokesperson has ranch and business background; lives in Windsor, owns a winery.
<u>Upper Dry Creek</u>				
Owner: M	Sheep ranch; timber harvesting.	By owner's father in 1926	Lives in Petaluma; caretaker on ranch.	Owner's father and owner are businessmen with ranching background. In 1950s, owner lived on ranch and still maintains house there.
N	Multiple use: timber harvesting, cattle ranching, potential 1000-acre recreational subdivision.	1976	Corporate absentee owners; Federal trapper and family caretake ranch.	Owners impressed by quality and abundance of game; hunting by employees and guests. (Temporary ownership of property in Rancheria Creek, see C above.)
O	Sheep ranch; some cattle. Timber harvesting.	1935	Owner spends 3-4 days on ranch, 3-4 days at home in Santa Rosa.	Owner wanted a ranch since boyhood. Combined business career (Santa Rosa sawmill) with ranching. Maintains ranch house without electricity or telephone. Raises most of own food on ranch.
P	Extension of Dry Creek CHZ ranch (see J above)			

Note: No information was obtained on two owners in the Dry Creek CHZ (total 93+ acres) nor on one owner in the Upper Dry Creek CHZ (ca. 20 acres).

without pretense. He also felt that running a ranch was risky and required a great deal of commitment, but that successful ranching provided great personal satisfaction.

The pleasure of living close to nature and the physical and psychological benefits of doing so was another commonly cited value. Some properties not devoted to active ranching have been purchased and conserved for just this purpose. Active ranches have sometimes developed from properties acquired for recreation, and some recent purchasers of properties currently devoted primarily to the enjoyment of nature hope to develop their holdings into active ranches.

A final value, hospitality, is inherent in the owners' ability to offer hunting privileges to family, friends, and business associates. Though owners themselves are not always enthusiastic hunters, and though leasing or sale of hunting rights is practiced on some ranches and not on others, all ranchers extend invitations to hunt and/or fish to selected individuals.

In summary, a distinct set of lifestyle values is associated with ranching in the Dry Creek Uplands. Positive value is placed on:

- the exercise of individual choice of lifestyle
- isolation and privacy
- self-sufficiency
- the physical and psychological benefits of closeness to nature
- responsible stewardship over the land
- hospitality in association with hunting and fishing

The Interplay of Economic and Lifestyle Values

The particular development which has occurred on properties in the Dry Creek Uplands represents an interplay between economic and lifestyle values.

Historically and at present, purchasers and homesteaders have been motivated by the potential economic appreciation of land. In his manuscript autobiography, Casper Ornbau described how, commencing in 1911 together with an initial 15 shareholders, he used his income from the practice of law to acquire thousands of acres in the Dry Creek Uplands:

We first started to organize a hunting club. We seemed to be moving along pretty well, and other properties were offered at prices that interested us, so we kept on enlarging. We also felt that investment in real estate would be a good one...As it happened, only a few of us were willing to carry the investment for a very long period---However,

as time passed the value of land and timber became more valuable and the long time investment paid off (Ornbaun 1956:6).

Beyond potential appreciation, there has been a general expectation that land should yield a return on investment. As a former ranch owner put it, "If land can't pay for itself it's worthless."

Sheep ranching proved a satisfactory way to derive a return on investment. Suited to the characteristics of the environment, ranching had several other advantages. One was that the capital costs of entry into sheep ranching were low. Old-time tenants stated that flocks multiplied rapidly from an initially purchased few head and that developing a flock in this way is advantageous, inasmuch as sheep born and raised on a property are not prone to stray from it and thus require less fencing. Another advantage was that little technical knowledge was required. Asked how people learned sheep ranching, a consultant who has worked in the Uplands since the 1930s said:

They generally hired someone who had had experience. Or worked on a ranch before they bought it, like ____'s dad, or just fell into it.

There wasn't so many complications then as there is right now. You raised your lambs, you sold them, you shipped your wool, you sold that, and that's about all. You didn't have a lot of people, disease--I can't remember doctoring a sheep when I was a kid. And then when they first started to bring sheep in here I don't think anybody brought a great big herd in here. They started small and built them up. That way they didn't have too much trouble keeping them home.

Far as learning the business, you just fell into it. Like farmers who have never seen a plow. Those old pioneers just figured that was the way it had to be done.

Ranches were developed primarily through the acquisition and consolidation of property rather than through heavy investments in structures, equipment, or technological experimentation. There was basically a cost-cutting approach to development. In his autobiography, Casper Ornbaun explained that:

In reading over the various purchases mentioned, one thing that may impress you is the fact that all of those purchases consisted of large ranches. This is one of the reasons that our operations were successful.

One of my reasons for purchasing ranches of the size of these was to cut down expenses. I found that two good men could handle two or three thousand sheep almost as cheaply as they could handle one thousand of fifteen hundred. And it was my idea to run on each ranch the maximum number that could be handled.

A current Rancheria Creek CHZ ranch owner said:

My dad liked the way of life, if he could make a profit. If you have any cash flow at all, and can cut your expenses below it, you're operating at a profit. And I'm kind of doing the same thing.

An ambitious sheep-ranching scheme was practiced between the mid-1920s and the late 1950s by, according to one consultant, no more than six ranches on the whole of the north coast (at least two were in the Dry Creek Uplands). Lambs born on the ranch were removed, together with additional lambs bought from nearby ranchers, to separate tracts of land owned or leased in the Napa and Sacramento valleys, and, later, Imperial Valley. There the lambs were grazed on stubble fields, finished in clover fields, and sold when convenient (see Sheep Ranching, this chapter). Though a deviation from the ranching practices in the Dry Creek Uplands, this innovation was basically an elaborate derivation from the local practice of expanding ranching operations by increasing the size of the territory utilized. Additional territory outside the Dry Creek Uplands served to capture profit otherwise gained by purchasers who fatten Dry Creek Uplands sheep in feed lots for resale.

Though clearly interested in land appreciation and continuing returns on investment, many Dry Creek Uplands ranchers fall into the category that the authors of "The Impact of the Sonoma County General Plan on Agriculture and Land Values" identified as "operators with more than agricultural interests." These include:

- The individual with a significant outside income who has invested primarily in a homesite and lifestyle and who may, particularly prior to the Tax Reform Act of 1976, have been motivated by the provisions of the U.S. income tax laws to invest in Sonoma County's agriculture;
- The individual who now is employed elsewhere but who intends either during the working years or after retirement to become an active participant in agriculture;
- The individual who has significant capital assets and who seeks a secure investment vehicle for these assets, while, at the same time, measuring return in terms of personal satisfaction as well as annual income;
- The family or individual, possibly of rather modest means, who makes a deliberate trade-off between economic return from agriculture and the ability to enjoy both an income and a lifestyle that are clearly and directly the result of individual efforts (McDonald and Grefe, Inc., et al. 1978:III-13-14).

Often, Dry Creek Uplands ranchers have accepted modest returns from sheep ranching and eschewed additional profit from diversification when such development would deteriorate their lifestyle. Thus when one consultant's father took over the ranch which his father initially bought as an investment, the grandfather complained to his son that "You're working too hard and making too little." "He was," said the consultant, "used to a bigger margin on investment." Though income from the lease of hunting rights can be the salvation of a financially pressured rancher, many landowners consider that the loss of privacy, nuisance, and litter produced by hunters outweigh the return from leasing. Further, there have been instances in which ranchers, experienced in business, have conserved both the aesthetic and the economic potential of their holdings by refraining from taking advantage of short-range gains from development. Recalling the practices of Casper Ornbaun, one consultant said:

A lot of ranches out there...killed a lot of that fir timber. They went in there and had it girdled. Even way back in the 1920s, he (Mr. O) wouldn't do that. He said, "Don't touch a fir tree." He was looking that far ahead, and it finally paid off. At that time you couldn't give fir timber away. It wasn't worth chopping down.... He understood the business. He was raised on a ranch and had the background. And he was a guy that would listen to the older fellows, too, to their ideas.

In summary, the compromise between economic and lifestyle values has produced extensive, but modestly capitalized and technologically conservative, ranches. The maintenance of the rural character of the landscape and its way of life has made the ranches vulnerable to failure in the present difficult economic climate.

Relationships Among Ranchers and Others

Ranchers in the Dry Creek Uplands participate in a network of person-to-person relationships among themselves and lack any formal organization analogous to the Healdsburg Development Association or the Dry Creek Valley Association to represent their economic and political interests.

The ranchers are well acquainted with one another and informally consult over common problems. During the course of this fieldwork, two ranchers discussed the impact of proposed changes in the Hot Springs Road. One of them suggested that they were already familiar with the views of a third rancher by virtue of all three being clients of the same attorney. Similarly, two

ranchers informally discussed their participation in this study "to get their story straight." Such informal association does not, however, override the ranchers' commitment to independence and self-reliance. After the subdivision of the nearby Wickersham Ranch, for example, a Rancheria Creek CHZ rancher joined with certain Dry Creek Valley property owners to support zoning changes to impede similar subdivision in the future--to the considerable consternation of most of his rancher-neighbors.

Relationships of ranchers with businesspersons in Healdsburg and Cloverdale appear cordial and mutually supportive. As mentioned previously, there is a notable absence of conflict based on class, wealth, or occupation. This may be in part attributed to general similarities in the backgrounds of ranchers and businessmen, but whatever affinity is based on common background appears to be cemented by common participation in what may be called a "gentlemen's hunting complex." Over the past century, it has been common practice for town businessmen to own or lease hunting lands in the Dry Creek Uplands. Ranchers and businessmen are able to share this common interest and common experience.

As a result of hunting, businessmen know the lands and the inhabitants of the area at first hand; they are familiar with the ranching economy and understand its problems. In Healdsburg and Cloverdale, the function of hunting is analogous to that of the golf course elsewhere. Hunting is a prestigious pastime which provides an opportunity to interact with business associates outside the office. Since ranchers can invite guests to hunt their lands, they have the means to extend their own hospitality to lawyers, bankers, and the like, building a network of relationships and obligations which yields access to financing, professional services, and clout.

The counterpart to the ranchers' cordiality to those to whom hospitality is extended is hostility to intrusive strangers. Roads in the Dry Creek Uplands are bordered by a profusion of No Trespassing signs and stoutly locked, fortress-like gates. Unfamiliar cars entering the area are watched by residents. Ranchers sharing access roads monitor the transit rights granted by their partners and become concerned when keys and combinations are disseminated.

Their concern is warranted. Ranchers uniformly reported sharp increases in damages attributable to poachers, thieves, burglars, and rustlers since construction of the Warm Springs Dam commenced. One landowner reported that he has had to call the sheriff about once a month. While some offenses are committed by local people, others have been traced to intruders from as far

as the San Francisco Bay Area. Intrusion by marijuana cultivators has also been reported. Ranchers also claim that when land passes into Government ownership the fact that it is no longer subject to intense private surveillance soon becomes widely known, and invasion by poachers and woodcutters follows.

Alternatives to Sheep Ranching

Whether because of a recent sharp increase in losses from predation, as ranchers claim, or because of an unwillingness to invest sufficient capital to control predation and respond to fluctuating prices and foreign competition, as wildlife advocates claim¹, sheep ranching in the Dry Creek Uplands is no longer a profitable venture. In addition, for ranches not operated by owners, knowledgeable ranch hands desiring, or willing to endure, the isolation of a sheep ranch are said to be in short supply, and competition from logging companies and sawmills together with social security and insurance requirements have driven up labor costs. Several experienced ranchers, both within and bordering the three candidate/critical habitat zones, have reluctantly sold their sheep and are now forced to contemplate uses for their land which were previously incompatible with their economic and/or lifestyle values. Other sheep ranchers are now at the point of abandoning their operations altogether.

One obvious alternative is cattle ranching. Historically, sheep have been more productive than cattle on this steep land, or so long-time residents claim. Too, a cultural component has operated: Many ranchers simply

¹In 1969, Justin Murray, a field representative for Defenders of Wildlife, interviewed 58 Sonoma County ranchers who the Division of Wildlife Services claimed had requested its trappers to control coyotes preying on their livestock. Many told Murray they had never requested any such assistance, others claimed they had requested the Division of Wildlife Services to trap other pests such as skunks, one had no livestock whatsoever and several attributed their stock losses to dogs, not coyotes. Murray claimed that coyote predation figures are grossly inflated by county, state, and federal trappers in order to perpetuate their budgets and that many ranchers are unable to keep an accurate account of their flocks and thus are completely inaccurate in tabulating their losses. He maintained that predation losses result from grossly inadequate fencing, lack of shepherding, and neglect during the lambing season (Murray 1971).

enjoy sheep (and the opportunity to work with sheep dogs)² but not cattle. But cattle are less vulnerable to predation, and the lesser labor requirements of cattle ranching are more attractive. These benefits are offset, however, by increased capital requirements, such as for stouter fencing and increased water supplies. At least one sophisticated rancher interviewed doubted that cattle ranching will be sufficiently profitable in the long run.

Owners who have previously refrained from doing so may be obliged to commercialize hunting on their ranches. The returns from leasing can be considerable. The 24 members of the Apple Tree Gun Club, for example, pay \$14,000 per year to lease 8,000 acres off Kelly Road in the Dry Creek Uplands. A CHZ landowner reported that he is currently receiving a \$1,000 annual membership from the members in the hunting club on his property, and that he is now forced to raise this fee. Among other possible alternatives, on at least one ranch in the Dry Creek Uplands, brood sows are penned and their offspring released for hunting. The hunting is advertised in national sportsmen's magazines and attracts hunters from as far away as Los Angeles, who pay \$100 per day for hunting rights and an additional \$100 for each boar bagged.

Timber provides some possibility for supplementary revenue. The Dry Creek Uplands is a relatively marginal timber area lying between timber-rich lands to the west and thinly forested lands to the east. In the 1950s, the expanded market for fir and changes in taxes levied against the value of standing timber dictated heavy logging of the area. While "leave trees" and pockets of trees protected by individual owners remain as limited resources utilizable at present, executives of Harwood Products, a Mendocino County firm with holdings in the Upper Dry Creek CHZ, state that the area was over-harvested 20 years ago and will have to be under-harvested for the next 30. Though one current owner refrains from harvesting timber at all, another milled timber on his own property at one time, and several others generate some income by thinning and replanting under the provisions of timber-management plans. Harwood executives, however, contend that the complexity

²It is curious that while sheep ranchers are dog fanciers and while this area has produced its own distinctive breed of sheepdog, no consultant mentioned experimenting with dogs to guard sheep from predators. According to studies cited by Defenders of Wildlife (Polenick 1980), these animals are effective, inexpensive, and readily available.

of timber regulations, the liability for failure to comply with them, and difficulty in acquiring conversion permits are impediments to the owner wishing to manage his own timber resources. Nor is this lifestyle attractive to more traditional sheep ranchers. This kind of timber harvesting is a lonely, noisy, smelly operation and dangerous, in that the operator, working alone, may have a serious accident with no one nearby to help. Contrasting caring for sheep with timber cutting, one rancher remarked that in sheep ranching, at least you have your dogs and horses to talk to.

Conversion to dude ranches or resorts might be feasible. Two recent purchasers of relatively small properties have considered constructing rustic cabins for rent to vacationers. On one of the larger ranches, hot springs were once enhanced by an elegant pool with auxiliary structures. These might be candidates for restoration as the core of a resort, although, when interviewed, the owner did not mention this possibility.

An integrated plan for multiple land-utilization is another option. This is the intention of Harwood Products, whose holdings are scattered from Santa Cruz to Del Norte County and include land in both the Rancheria and the Upper Dry Creek habitat zones. In the latter, Harwood plans to combine timber harvesting with cattle ranching and development of a recreational subdivision on 1,000 acres, set aside for high-density zoning. In similar situations in Mendocino County, Harwood has subdivided into parcels with a minimum size of 20 acres and an average size of 27 acres, shaped to conform to the natural contours of the terrain. Roads are developed to county code, but water and sewage facilities are not developed; as Harwood's president said, "We're not trying to appeal to people who want those niceties." Creation of recreational subdivisions from the most marginal lands of a parcel is an integral part of Harwood's strategy for multiple-use development of ranches "in areas that can't carry themselves." In the future, Harwood believes that the single-use ranch is not likely to remain viable. A large firm can deploy capital and utilize its technological resources to support more intensive multiple uses of ranches, better tree stocking, range improvement, work on recreational potential to enhance wildlife, and subdivision of a fraction of the total acreage. The Harwood Corporation is widely respected for its non-exploitative and long-range approach to ranch-forestry management, but even its current plans may not be viable. It is rumored that the Harwoods' own affection for ranches has caused them to acquire properties that are less than marginally

productive, that the firm has cash-flow problems, and that its Dry Creek Uplands holdings may soon be on the market.

The final alternative is sale of a ranch as a whole or subdivided. A large ranch within the candidate/critical habitat zones was sold 17 years ago. When interviewed, the seller stated that the labor and time investment was not worth the return; he can make five or six times as much by selling the land and investing the money while he plays golf. Since selling, he claimed he has not returned to visit his former ranch, because the changes in the area "make me sick." One owner of a large ranch which is currently losing money, deeply committed to the maintenance of his ranch-based lifestyle, supports his ranch with income from other investments while searching for a way to at least make it break even.

Another second-generation owner of a large ranch failed to make money for the first time last year. While currently debating between the introduction of hybrid lambs that twin to compensate for increased predation losses vs. switching to cattle and increased reliance on the sale of timber and hunting rights, he is doubtful about his possibilities for long-term success. He says a rancher would be wiser to subdivide his lands, sell them, and invest in something else.

At present, subdivision is inhibited by provisions of the Sonoma County General Plan, but, as the Sonoma County Planning Director has stated, and as investors know full well, it takes only three votes for county supervisors to discard the general plan. Current high interest rates and the high price for acreage, based on expectation and speculation, might seem to preclude all but the richest of potential buyers. Yet the last rancher cited above pointed to the worldwide scarcity of lands worthy of investment and the presence of a worldwide land market in which the inflated prices of California rural real estate are a bargain in comparison with asking prices in Europe. He anticipates continued land appreciation and pressure to sell.

Ranchers and Owners: Continuities and Changes

It appears that the era of the large sheep ranch in the Dry Creek Uplands is now drawing to a close. There is no profit in sheep nor, in many cases, are there strong pressures to perpetuate ranches in family lines. Committed to a strong valuation of freedom of choice, many of the large ranchers have raised children who have chosen other careers. Within the Upper

Dry Creek candidate/critical habitat zone, one large ranch has passed from a family that owned it for two generations into the hands of a timber firm. One major uplands ranch outside the candidate/critical habitat zones was subdivided under zoning regulations then in effect, and another is administered by bank trust officers for heirs who are said not to be interested in participating in its operation. Ranches and ranchers are in a period of transition.

The values of the new owners of the land, however, are strikingly similar to those of the owners who consolidated the original large ranches in the area (see table 8). Five individuals have purchased land in the candidate/critical habitat zones since 1950. One has had family contacts with the land for sixty years, hunting there as a boy, and now brings his grandchildren to vacation on his ranch. Two are relatively young physicians whose professional incomes have enabled them to invest in property and who enjoy exposure to ranch life as a counteractant to the pressures of urban careers. A fourth is a businessman who, although he purchased property south of the Dry Creek CHZ with subdivision in mind, has purchased additional property within the Rancheria Creek CHZ as a hunting preserve and a place to enjoy nature. A national director and former local chapter president of a conservation group, he refrains from any activity which would interfere with the wildlife on his property and has developed water and faunal resources to encourage the propagation of fish and game. The fifth--young, self-employed, university educated, and apparently less affluent than his older neighbors--has carefully inventoried the natural resources of his property and hopes eventually to live there year round. Although he would like to subdivide a portion of his property that fronts Kelly Road ("to have neighbors there and to help with the payments"), he intends to maintain the more rugged southerly portion of it as "open space."

Harwood Products, to be sure, is a commercial firm. Yet it is run by two brothers and one sister who come from a ranching background. ("Bud" Harwood, the president, described himself as "a hillbilly.") The firm plans to develop its Upper Dry Creek property as a multiple-use ranch and, in fact, the ranch it acquired was originally developed by an investment corporation. The new owners seem to be stamped from the same mold that produced the old and to be motivated by a similar blend of economic and cultural values.

Future Development of the Dry Creek Uplands

As in the past, recent development has been motivated by an interplay between economic and lifestyle values. At current prices, a repetition of the late historic pattern of land consolidation by educated, professionally established buyers whose initial interest is recreational seems unlikely. Nor does the current status of sheep, cattle, or timber production make it likely that ranches of the present and future will be able to pay for themselves.

In contrast to the era of ranch development earlier in the 20th century, the current generation of purchasers may be able to offset negative cash flows with tax benefits and to retain land as a shelter from both taxes and inflation. The paucity of roads and utilities, a damp climate which discourages year-round living, and limiting zoning regulations all constitute deterrents to subdivision for residential purposes. Concurrently, the increasing scarcity of land with a rural character within driving distance of the Bay Area provides an economic incentive for the preservation of the undeveloped character of these properties.

The Dry Creek Uplands has continued to attract buyers motivated by the cultural value of living on an isolated and rural retreat. The recent purchasers, occupying hundreds rather than thousands of acres, have developed their holdings modestly and rustically with the intention of preserving wildlife and the ranchlike qualities of the environment.

CHAPTER 6

PROJECTED CHANGES IN THE CHZs

In the preceding chapters, sociocultural factors operating in the candidate/critical habitat zones were identified, described, and evaluated. This chapter focuses on the changes in these factors that may occur during the next century (1) if the Federal Government takes no action in the CHZs, and (2) if the Government opts to take real estate action for the conservation of the peregrin falcon. The discussion relating to each CHZ is preceded by a description of impacts that are generally applicable to all zones under the given scenario.

Impact of No Action by the Federal Government

Two scenarios of growth were proposed for the area by the Corps of Engineers (Scope of Services:4). The first assumes that three to five residences will be present in each zone during the first 50 years, with approximately seven residences within 100 years. As the 50-year level has already been reached in some zones today, and in view of the current trend toward smaller landholdings, a more likely minimum-growth scenario of one residence per 500 acres (nearly 30 landholders) is proposed here. The "worst-case" scenario proposed by the Corps of Engineers (called here "maximum growth") projects that one residence per 20 acres will prevail, bringing the total number of landholders within the privately held acreage of the zones to 675; such a figure implies a population of several thousand in the Dry Creek Uplands as a whole. Although changes in county land-use regulations over the next century might well allow such development, this projection seems unlikely in view of the inaccessibility of water and utilities and the ruggedness of much of the terrain. An expected two million annual visitors to Lake Sonoma, however, might approximate the impact of such a large number of landowners.

Minimum-Growth Scenario

Under the minimum-growth scenario, possible only if the impact of Lake Sonoma is less than anticipated, current trends in land use would persist. The Dry Creek Uplands would continue to fill with affluent owners holding rustically developed ranches or retreats of a few hundred acres each, while some long-term owners might maintain large parcels for multiple-use

purposes. Some livestock raising might continue as long as tax advantages are available for agricultural preserves, but most sheep ranches and their cattle-ranch alternatives would disappear. Greater returns from the land could be expected from timber harvesting, the leasing of hunting rights, and, possibly, summer rentals. Harvesting of hardwoods may become an important income source if their energy potential as fuel for steam generation can be realized; increasing demands and high prices for firewood will also make hardwoods an important resource.

Under the minimum-growth scenario, the number of full-time residents might remain relatively constant, while many new owners might develop their properties for weekend or summer use. Exorbitant estate taxes would make retention of large properties by heirs unlikely, but the resulting new parcels could be expected to be relatively large. Most owners would be likely to have a conservationist ethic and to have both economic and lifestyle incentives to preserve the wild character of their properties. Owners would actively discourage trespassers, for their own privacy and the protection of game species and any remaining livestock. They would oppose destructive land uses, especially environmentally unsound logging practices. While increased traffic would be inevitable after the completion of Lake Sonoma, active surveillance of the properties by owners or caretakers and maintenance of private fencing and "no-trespassing" signs would keep trespass and vandalism to a minimum.

Maximum-Growth Scenario

The maximum-growth scenario would result from the effects of development surrounding Lake Sonoma--both Federal recreational facilities and subdivision of private lands--and the loosening of county land-use restrictions brought about by a change in the political climate. While the rugged land may be unsuitable for extensive year-round residence, it would be ideal for the development of summer vacation retreats. How far subdivision will profitably extend into the uplands is uncertain. Such operations will be watched by neighboring landholders, and their success or failure will partly dictate future subdivision moves.

Economics would be only one factor affecting the decision to subdivide: The greater population density--at least during the summer months--

as well as greatly increased traffic would radically alter the present lifestyle. While a farming area may retain its rural character despite the construction of a few new houses or a slight increase in traffic, the quality of areas such as the CHZs--valued for their isolation, silence, clear air, and relatively unaltered landscape--is in a much more delicate balance. Only two consultants expressed current intentions to subdivide, but many may feel pressured to when the activity on the lake and the subdivisions surrounding it render the area incompatible with present reasons for land ownership. Under the maximum-growth scenario, family estates would be subdivided into the greatest number of parcels allowed, as there would be little incentive to maintain their integrity.

A result of a large weekend or summer population would be increased vandalism and burglary. Large numbers of outsiders have already been attracted to the area, and this interest can be expected to increase as lake activity expands. Few cabins or ranches would be occupied full-time for owner surveillance of the area; close ties among landholders would be formed only rarely as population expands, and owners would not likely look out for one another's property. Another impact would be the effect of such population density and increased traffic on game species. Leasing of hunting rights, an increasingly important income source, might be curtailed in the future if game species were driven out by human activity.

Native American consultants interviewed for this study have hunted, fished, and gathered plant resources from these lands in the past, and some continue to today, but access has usually been gained by trespass in recent years. Under a minimum-growth scenario, such land use might continue. Further development in these areas, however, would put an end to hunting by Indians.

While a minimum-growth scenario would result in little damage to pre-historic and historic archaeological resources, moderate to maximum growth would bring about greater population density and accessibility and visibility of cultural properties. The cultural sites' locations, primarily along roads and drainages, make them particularly vulnerable to destruction. Improved accessibility provided by new or better roads would act as an inducement to souvenir hunters. Trespassers with off-road vehicles

could cause severe damage to sites. Cultural sites could be disturbed or destroyed through construction of dwellings, utility lines, and the improvement or construction of roads. Increased erosion that might result from construction would have a detrimental effect on some extant archaeological properties. Landholders might demolish existing historic structures to build their dwellings or to salvage lumber. (The process of natural decay of such structures or fencing is recognized as on-going and would not be affected by any of the proposed alternatives.)

The Zones

Rancheria Creek

The most conservative land ownership appears in this zone. No subdivision plans were reported. Only one landholder is a recent purchaser, and his intentions are to preserve the character of his acreage and eventually retire there. Other owners have held their parcels for more than 20 years; one is a third-generation rancher. Timber harvesting has been carefully managed and will continue to be a source of revenue. The two largest properties have been active sheep ranches until recently, and both owners now intend to switch to cattle. Private hunting is an important activity in the zone, and one owner leases hunting rights. One property is owner-occupied, two are occupied by caretakers, and all but one are actively used by owners. (The exception is a small parcel held by out-of-state owners.)

There is little reason to expect major changes in this zone under a minimum-growth scenario. Heavy population densities on neighboring properties and increased use of Rockpile Road in the future, however, could reduce the appeal of the area to these owners.

Sites of importance to the Kashaya Pomo may be present in this zone, although information is not available at the time of this writing (see Chapter 3). In addition, two ethnographic sites identified in the literature (see map 11) may be present. Several areas of high archaeological sensitivity were identified (map 8), and cultural sites could be negatively impacted by development in this zone.

Dry Creek

The zone consists of two non-contiguous parcels, one north and one south of Dry Creek (see Map 6). The greater accessibility of the Dry Creek Zone--to Highway 101 on the north and proposed Lake Sonoma on the south--make this area a target for speculation and growth. There are more landholders in the zone, and at least one property is held primarily for speculation: 100-acre parcels are currently planned for this 1,900-acre piece near the south lakeshore in the Dry Creek Zone (220 acres of which extend into the zone), and these parcels can be expected to split into smaller lots with time (see Map 6). While newly acquired properties may be heavily subdivided, the majority of the privately owned acreage in this zone is held by long-term owners with active interest in their ranches. Most of this CHZ has been zoned as an agricultural preserve. Current uses include cattle ranching, private hunting and recreation, leasing hunting rights, and a vineyard. Timber harvesting has been practiced by one owner. There are several full-time residents. Thus, while the southern portion of the zone will experience rapid growth, the northern portion can be expected to remain relatively stable.

No traditional sites or current uses of this zone were identified by Native Americans, and their interests should not be affected by development. Relatively few prehistoric archaeological sites are expected in this CHZ, although evidence of hunting activity would likely be revealed by field survey (see map 9).

Upper Dry Creek

This is the largest of the three zones, roughly five times the size of the Rancheria Creek CHZ. Two owners hold the majority of the acreage. While most land in this CHZ is zoned agricultural or timber preserve, this is the only zone that contains acreage in A-2 zoning, which would permit extensive parcelization (see map 7). A timber corporation is contemplating subdivision of this 1,000-acre portion of their property for second-home lots. Average lot sizes in another of this corporation's ventures were 27 acres. If such density occurs in the Upper Dry Creek subdivision, it would have a profound effect on the area, bringing up to 40 new landholders into this zone. Increased use of Rockpile Road, which provides access to this acreage, would also affect the Rancheria Creek CHZ. Timber harvesting is the major use of the other acreage held by this corpora-

tion, while cattle ranching is planned. The only extant large sheep ranches within the CHZs are found in this zone, occupying over half of the acreage. While one rancher plans to switch to cattle, sheep ranching will continue on the larger property.

Other than the timber corporation and a small (20-acre) speculative parcel, owners have held their lands for 45 years or more. None of the owners lives on the property full time, although one couple spends half of each week in residence. Caretakers occupy the other properties. The future use of this zone clearly rests on the plans of the timber corporation.

Hunting rights are leased on the largest property in the zone, and informal hunting takes place on the other major parcel. Fishing is also an active recreational pursuit. These uses of the zone are expected to persist. Native American hunting in the area, with access gained by trespassing, would probably cease with a rise in population.

The zone contains several areas of high prehistoric archaeological sensitivity (map 10). Special-purpose or seasonal habitation sites are likely to be present in the drainages of the western half of the zone, while permanent habitation sites may be found at the confluence of Galloway and Dry creeks, and near springs elsewhere in the zone. Potential for important historical archaeological and extant sites is high throughout this zone, which experienced the most active use of any of the CHZs during the historic period.

Impact of Fee Acquisition by the Federal Government

Fee acquisition would include the purchase of the land by the Federal Government, boundary fencing, the limitation of any public access, and management of the habitat to increase prey species for the peregrine falcon by planting and/or introduction.

The policy of fee acquisition would have a detrimental effect on most property holders, who have a very personal attachment to their lands. Two third-generation ranchers hold large acreage, and the majority of the landholders have had contacts with the study areas for many decades. Much of the lands in the CHZs are portions of larger holdings outside the zones. Fee acquisition of portions of these properties would, in many cases, render the remaining acreage economically unsound. Thus fee acquisition

within a CHZ could lead to extensive parcelization adjoining it.

Many landholders have retained their lands despite losses in recent years on the expectation that their current deficits would be more than offset by future sale of the land when necessary. The personal and financial investment of current long-term landholders, as well as that of more recent speculators, would be undermined by a fee-acquisition policy.

In addition, fee acquisition would be no guarantee that the land would be protected; it could instead ultimately stimulate greater growth. One consultant cited a case in the area in which Government purchase and subsequent resale had such an effect.

Hunters and property owners, who have noted a major increase in poaching in the Dry Creek Uplands in recent years, claim that effective patrol of these remote lands is practically impossible, especially insofar as there has been increased trespassing at night. Game species are certain to proliferate in the new protected areas, providing further incentives to poachers. Poaching has led to a large number of lost hunting dogs who would no doubt feed on species protected in the area. Federal landholdings have been cited by several property owners as breeding grounds for predators, particularly coyotes and wild hogs. The impact of larger numbers of these animals on neighboring sheep ranching could be considerable.

A large unpatrolled area adjacent to a public recreation area would likely attract an increasing number of casual trespassers as well. Fencing of the property, rather than discouraging such trespass, might actually motivate it, as trespassers could reasonably expect to have the area to themselves once entry was gained.

If the pattern observed in the WSCRS area (see Greenwood et al. 1980a:6,11,21; 1980b:87,114) continues, the removal of private occupants could result in serious damage to extant archaeological features both by action of the Government and by trespassing souvenir collectors. In addition, such action could result in the rapid degeneration of historic structures presently maintained by their occupants. No damage would be incurred through construction or related development. The impacts of range and habitat management practices (which may include planting and controlled burning) can not be predicted.

The suspension of existing land uses would decrease the area's value as a dynamic cultural landscape. Similarly, if access to areas is restricted, the public would lose the opportunity to view this evocative landscape.

The Zones

Rancheria Creek

For all zones, personal hardship to owners committed to their landholdings would result from fee acquisition; the problem is especially acute in this zone, where one owner has already been displaced once by the Government. This zone will be within relatively easy access to the lake, and trespassing and vandalism could be expected to increase considerably in unoccupied land.

Dry Creek

Speculators in this zone would no doubt lose expected profits from their investments, and their planned subdivisions--desirable to those wanting vacation accommodations near the lakeshore--would be stopped. Elsewhere in the zone, active operating ranches would be forced out of the economic sphere. Easy access to the southern portion of the zone from Lake Sonoma would make this area particularly vulnerable to trespass and vandalism.

Upper Dry Creek

Again, the interests of speculators would be undermined in this zone. One very large sheep ranch extending into Mendocino County has extensive acreage in this zone. Removing nearly a third of that ranch's acreage might make the remainder uneconomical to maintain, and the last large sheep ranch in the area might be required to shift its economic emphasis or sell.

Impact of Acquisition of Development Rights

Acquisition of development rights would involve a conservation easement purchased by the Federal Government, which would restrict use of property to existing or historic land uses.

Restriction of land to current activities presents problems for an

area in transition. Some of the land is presently held for speculation, while most sheep ranchers are now seeking alternative uses for their properties. Acquisition of development rights allowing relatively broad land-use options could increase the possibility that large ranches could be maintained. This would especially be the case if fees for development rights could be used to offset estate taxes or losses incurred in continuing sheep ranching or in switching to the greater investment of cattle. One large property owner argued that the purchase of development rights would be effective only if rights to an entire ranch, and not just that portion within a candidate/critical habitat zone, were purchased. Buying rights to a portion of a ranch might destroy it as an economic unit, as large acreage and access to water and transportation routes are essential requisites for profitable sheep raising.

Should hunting be restricted in the conservation easement, this would have an important effect on lifestyle and economics. Leasing of hunting rights has been an economic boon to many ranch owners, and its curtailment would produce a hardship unless development fees were negotiated to offset this income loss. Invitational hunting has been an integral part of professional and personal relationships bridging the Uplands and the urban community; restriction of this activity would negatively alter long-term reciprocal arrangements.

Curtailing development would reduce impact on cultural resources. The ongoing processes destructive to cultural properties would continue, although some would be modified as a result of changing economic patterns. If sheep ranching continues in the area, a result would be the replacement, in time, of existing historic, split-rail fencing.

The Zones

Many landholders in all zones would benefit from this alternative, although speculators, identified in the Dry Creek and Upper Dry Creek zones, would lose anticipated profits.

Recommendations

The three candidate/critical habitat zones are isolated segments of a much larger, relatively homogenous area--the Dry Creek Uplands. Any action taken by the Federal Government will have a widespread effect on the economics and lifestyle of the whole region. For this reason, it is recommended that a public hearing be held in the event of Federal action, so that neighboring property owners and all other potentially affected persons may learn of the Government's plans and respond to them. Such a hearing would also give the Kashaya Pomo, who are believed to have made considerable use of the Rancheria Creek CHZ, and other Native American groups who may have used the area, an opportunity to state their views.

Native American consultants to this study requested that they be given access to certain plant resources in the CHZs, should one or more of these zones come under Federal ownership. The extensive tan oak groves in the northeastern portion of the Rancheria Creek CHZ and the southern Upper Dry Creek CHZ have traditionally been used by local Indian groups. Tan oaks remain the preferred acorn today, and these groves are among the most abundant in the county. Access was also requested to the hazel tract in the Dry Creek CHZ, which could provide valuable basketry materials. Locations of these resources are shown on map 11.

Should the Government take action in the CHZs, an extensive prehistoric and historic archaeological survey of the zones would be necessary. Only the 2,500 acres of Federally held land within the zones has received field reconnaissance. Several highly sensitive areas were identified as potentially containing prehistoric sites (maps 8,9,10), and extant and archaeological historic sites are probably present in all zones, especially Upper Dry Creek. On-the-ground ethnographic field survey is also needed in all zones, as time limitations and limited access to private lands allowed only a cursory view of the area.

Given the present climate of resentment of Federal agencies in the CHZs, the Government can anticipate difficulties in negotiating for fee acquisition or development rights. A third party might be more successful in negotiating such agreements. The Sonoma Land Trust exists to "assist property owners to take advantage of various legal devices to create the kinds of protection they prefer for their land" (Sonoma Land Trust

Newsletter, December 1980). Negotiations could be conducted for a fixed fee, or they could be supported by allowing the Sonoma Land Trust to take advantage of bargain sales.

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CONSULTANTS

INDIVIDUALS

CHZ Property Owners

Thomas Baxter III
White Oak Ranch

Bill Bird
(Lake Sonoma Hills, Ltd.)
Healdsburg, California

Douglas and Lillian Cartwright
San Francisco, California

A. Crawford Cooley
Petaluma, California

Charles Gloeckner
Sebastopol, California

Michael N. Harris
Stockton, California

Jack Harwood
James Harwood
Virginia Harwood
Leo Hulett
Arthur Comer
Skip Newell
Harwood Products
Willits, California

Robert Lambert
Santa Rosa, California

Gerald Lewers
Cloverdale, California

Theodore Wilde
Cloverdale, California

Paul Wolfe
Santa Rosa, California

Other Individuals

Elsie Allen
Ukiah, California

Wayne Barrett
Healdsburg, California

Mr. and Mrs. Lev Beeby
Cloverdale, California

Duval Bell
Healdsburg, California

Obed Bosworth
Geyserville, California

James Boyd
Lawrence Boyd
Healdsburg, California

Ben Collins
Healdsburg, California

Clarence Cordova
Santa Rosa, California

Alfred Elgin, Sr.
Rose Elgin
Santa Rosa, California

Olive Fulweider
Santa Rosa, California

Mrs. Paul Kelly
Santa Rosa, California

Ed and Nancy Kissam
Camp Meeker, California

Frank Ledford
Cloverdale, California

Justin Murray
Mendocino, California

Frank Ornbaun
Santa Rosa, California

Robert Praetzel
Kentfield, California

John Santana
Cloverdale, California

James Smith
Santa Rosa, California

Lucy Smith
Healdsburg, California

Laura Somersal
Geyserville, California

Hamilton Tyler
Healdsburg, California

Geraldine Von Husen
Menlo Park, California

Joe White
Petaluma, California

INSTITUTIONS, AGENCIES, BUSINESSES

Private

Gary Bogue, Richard Spotts
Defenders of Wildlife
Walnut Creek, California

Jack Brandt, Milton Brandt
Healdsburg Development Association
Healdsburg, California

Hannah Clayborn
Healdsburg Historical Society
Healdsburg, California

John Butts
Domenichelli Realty
Cloverdale, California

Bruce Dzieza
Willow Creek Realty
Sebastopol, California

Pat Provost, Carol Vegod
Golden Realty
Geyserville, California

Joan Vilms
Sonoma Land Trust
Santa Rosa, California

Ed Wilson
Dry Creek Valley Association
Healdsburg, California

Public

Allen Buckman
Department of Fish and Game
Yountville, California

David Harlow, Michael Weinstein
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University of California Hopland Sheep Station
Hopland, California

Ron Taddei
Sonoma County Department of Planning
Santa Rosa, California

APPENDIX A
EARLY SETTLERS IN THE STUDY AREA
ENUMERATED IN THE 1860-1900 CENSUSES

APPENDIX A

EARLY SETTLERS IN THE STUDY AREA

ENUMERATED IN THE 1860 CENSUS

<u>Mendocino Township</u>	<u>Age</u>	<u>Occupation</u>	<u>Born</u>
Bishop, Tennessee	30	farmer	Tennessee
Eliza	20		Missouri
John	4		California
Grace	2		California
Thomas	18		Tennessee
Shouster, Wm. ¹	45		Missouri
Elizabeth	35		Missouri
Alley	14		Missouri
Lewis	12		Missouri

ENUMERATED IN THE 1870 CENSUS

Cloverdale Township

Howard, James L.	47	farmer	New York
wife Anna D.	47	keeps house	Ohio
son Horrace W.	14	at home	Michigan
daughter Nevada	12	"	Michigan
son Charlie A.S.	9	"	Michigan
daughter Kattie E.	7	"	Michigan
brother Esquiro D.	44	farmer	New York
brother Marshal	22	laborer	Illinois
brother Orville	19	"	Michigan

Mendocino Township

Samuels, James	39	stock raiser	Ohio
wife Sarah	38	keeps house	New Hampshire
daughter Luella	15	at home	Illinois
daughter Isabella	5	"	California
Reani, Phillip	14	laborer	California
Inglehart, Samuel	25	"	Missouri
Jack	15	domestic	California
Roberts, John	25	stock raiser	Scotland
wife Meaniow	25	keeps house	Scotland
Sibalds, John	25	stock raiser	Scotland

¹Names are spelled as they appeared on the census.

APPENDIX A (continued)

<u>Mendocino Township (1870)</u>	<u>Age</u>	<u>Occupation</u>	<u>Born</u>
Bishop, Tennessee	40	stock raiser	Tennessee
son John	13	at school	California
daughter Grace	11	"	California
son Joseph	8	"	California
daughter Mary	5	"	California
daughter Annie	3	at home	California
daughter Louisa	1	"	California
Rider, Ralph	24	school teacher	New York
Bartenshaw, Mary	24	housekeeper	Canada

ENUMERATED IN THE 1880 CENSUS

Cloverdale Township

Howard, Square	53	farmer	New York
wife Alice	35	keeps house	Ohio
daughter Delle	6	at school	California
daughter Elva	2		California
Trotail, Isac	55	laborer	Missouri
Ferry, John	42	sheep rancher	Ireland
wife Mary	38	keeps house	Ireland
daughter Mary	15		California
son Thomas	14	at school	California
daughter Lizzie	13	"	California
daughter Annie	11	"	California
son John	9	"	California
daughter Nellie	8	"	California
son Michael	6	"	California
son Frank	3		California
daughter Josephine	2		California
son James	2/12		California
stepfather O'Connors, James	65		Ireland
Royen, Daniel	35	laborer	Ireland
Fraser, Thomas	59	laborer	Scotland
Smith, George J.	38	painter	New York
wife Mary J.	35	keeps house	New York
son Henry J.	14	at school	California
son George S.	12	"	California
daughter Bertha	5		California
son Eloie	2		California

APPENDIX A (continued)

<u>Cloverdale Township (1880)</u>	<u>Age</u>	<u>Occupation</u>	<u>Born</u>
Mathews, George	53	farmer	Wales
wife Ann	41	keeps house	Ireland
son George	12	at school	California
son Henry	11	"	California
son John	9	"	California
boarder Dunn, John	35	laborer	Ireland
boarder Bates, John	60	"	England
<u>Mendocino Township</u>			
Bishop, Tennessee C.	50	farmer	Tennessee
wife Mary	33	keeps house	Canada
son John	23	at school	California
son Henry	18	"	California
daughter Mary	15	"	California
daughter Annie	13	"	California
daughter Jane	11	"	California
daughter Flora	6	"	California
stepdaughter Burtenshaw, E.	14	"	Canada
Otis, Joseph	48	farmer	Canada
wife Elizabeth	42	keeps house	Canada
son Fredrick	16	at school	Iowa
son Louis	11	"	California
son Leonard	1	"	California
brother Isaac	39	farmer	Canada
mother Ann	64	"	England
Bryant, John J.	32	stock raiser	California
mother Grissom, Laura	60	keeps house	Virginia
brother Wm. H.	29	stock raiser	California
brother's wife Susan E	25	keeps house	Missouri
Samuels, James	49	stock raiser	Ohio
wife Sarah	50	keeps house	New Hampshire
daughter Bell	16	at school	California
Sibbald, John	35	stock raiser	Scotland
wife Luella	24	keeps house	Illinois
daughter Gertrude	4	"	California
son Walter	2	"	California
at work Thompson, C.	16	laborer	Prussia
at work Strong, Ernest	19	"	Australia
Aman, Mat	24	"	California
Fellows, Thomas	13	"	Illinois
Godrey, Della	17	"	California

APPENDIX A (continued)

<u>Mendocino Township (1880)</u>		<u>Age</u>	<u>Occupation</u>	<u>Born</u>
indian	Meariama	55	laborer	California
wife	Malaya	54	wash woman	California
son	George	13	laborer	California
indian	John	40	"	California
wife	Mary	37	wash woman	California
son	Sam	11		California
son	George	9		California
cousin	Whiskey Joe	53	laborer	California
indian	Toso	90		California
indian	Sory	60	laborer	California

ENUMERATED IN THE 1900 CENSUS

Cloverdale Township

Howard, Alice	57		Ohio
daughter Delle	26	at school	California
daughter Elvira	22	"	California
Drisback, Wm.	27	farm laborer	Iowa
Mathews, Geo. C.	33	sheep raiser	California
Kenedy, Michael	16	sheep herder	at sea
Mathews, Eliza	60		Ireland
son Henry	28	day laborer	California

Mendocino Township

Bryant, John	51	farmer	California
wife Ella	33		California
daughter Lucy	15	at school	California
daughter Bertha	12	"	California
daughter Mary	11	"	California
Kelley, Charles	31	farmer	Iowa
wife Linnie	31		Canada
son Byron	3/12		California
Otis, Elizabeth	63	farmer	Canada
son Frederick	35		Iowa
son Lewis	21		California

APPENDIX A (continued)

<u>Mendocino Township (1900)</u>	<u>Age</u>	<u>Occupation</u>	<u>Born</u>
Throop, Charles	42	farmer	Indiana
wife Mary	45		California
stepson Rosans, Edward	23	farm laborer	California
stepson Eugene	20		California
stepdaughter Rachael	9		California
stepson Thomas	8		California
stepson Charles	7		California
stepson Lewis	5		California
Nobles, Richard	51	farmer	Arkansas
wife Ida	34		California
son John S.	11	at school	California
son Harmon R.	10	"	California
brother-in-law Galispie, Vernon	18	farm laborer	California
Lowry, Rodney	41	farmer	California
wife Etta	29		California
Noble, Joseph	26	farmer	California
wife Laura	24		California
daughter May	1/12		California

APPENDIX B
VERNACULAR ARCHITECTURE SURVEY

APPENDIX B
VERNACULAR ARCHITECTURE SURVEY

Introduction

Plagued by weather and conflicting schedules, the vernacular architecture component of this study was restricted to one afternoon, 31 January 1981. Thus the following statement must, by necessity, be brief. Those properties deemed most architecturally promising--Wolf Ranch and the Matthews' homestead, as examples--were not accessible; therefore, only the Cooley Ranch and the "Cummings" property were visited and assessed.

"Cummings" Property

This rebuilt and remodeled house (plate 10) is of the "square house with pyramidal roof type," commonly found throughout California, the Midwest, and the Deep South (even Australia). The main house has been considerably remodeled; its outer walls have been moved, and the house extended to the left. The date of original construction is difficult to assess; it was built some time between 1870 and 1900. This structure may be the J.S. Cummings

PLATE 10



house noted on the 1872 GLO survey plat. Ancillary structures include a swimming pool, rock sculptures, a patio with bizarre stone fireplace (see plate 9, chapter 5), a cold storage house, and a sheep shed.

Cooley Ranch

The ranch consists of two main houses, a "bunkhouse" (see plate 2, chapter 1), as well as the hot springs on the ranch property. The main dwelling may have been the original Sherburne house; it is a broad gable-end house with rustic siding and has been considerably remodeled. A porch has been enclosed and a modern fireplace and stack added on the east wall. A back appendage--a combination concrete and frame outbuilding--apparently functions as cold storage or possibly as a smokehouse. There is a corrugated sheet metal shed with pole framing. The main house is nicely sited on a grassy knoll with a northern exposure and overlooks the ranch property. The main house is shown in plate 11.

PLATE 11



The front yard of the main house is demarcated by the traditional split/rough wood and wire fence which is seen throughout the survey area. This fence type, no doubt well-suited for sheep-ranching, creates a

cohesive landscape and suggests the hint of a folk or regional culture. Slightly north, in Mendocino County, this fence type gives way to the "snake fence," as once found extensively throughout the rural South.

Discussion

Surely the most striking expression of folklife and traditional culture was found hanging from a modern wire fence in the Upper Dry Creek Zone--the carcass of a coyote (see plate 8, chapter 5). In extensive fieldwork throughout northern California, I had never seen this particular folk custom, although it has been well documented in Nevada, Colorado, and Utah by folklorist Richard Poulsen. When queried, ranchers normally offer a functional explanation: The carcass acts as a "scarecrow" to frighten away other predators. It may, in a deeper sense, be a suggestion of "sympathetic magic," that is, like produces like. It has also been hypothesized that this practice is a symbolic statement of frustration towards the Federal Government, which has prohibited what ranchers consider to be the most effective means of predator control. According to Poulsen, a good coyote pelt fetches as much as \$200 on the domestic and foreign fur markets. It is therefore rare to see them displayed on fences.

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